SECTION 028213 - ASBESTOS ABATEMENT

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APPENDICES

SECTION 028213 – ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

The Work is, in general terms: Provide all labor, equipment. Material, supervision and subcontracting for the safe removal and disposal of all asbestos-containing materials (ACM) associated with this Project. This section also includes all Work necessary to reduce airborne fiber concentrations of asbestos to the specified level and maintain the specified asbestos control limits during the life of this contract. The term "Hazardous Material Contractor (HMC) when used in this specification shall always refer to the asbestos abatement contractor. The term "Government IH" shall refer to the third party consultant, independent of the HMC, responsible for project surveillance and will be under separate contract to the government.

The Work covered by this section includes the safe removal of (ACM) which will be encountered during renovation activities associated with this project. In addition to the safe removal of ACM, this section also describes procedures and equipment required to protect workers and occupants of the regulated area from contact with airborne asbestos fibers and ACM dust and debris. Activities include OSHA Class I, II, III and IV Work operations involving ACM. The Work also includes containment, storage, transportation and disposal of the generated ACM wastes. More specific operational procedures shall be detailed in the required Accident Prevention Plan and its sub-component, the Asbestos Hazard Abatement Plan.

A. Abatement Work Tasks

The HMC is responsible for removing and disposing of all asbestos-containing materials (ACM) and asbestos contaminated materials associated with this project. Areas where ACM and contaminated materials are to be abated are identified on the project plans and in the project specifications. Abatement Work will be performed in the following areas: Asbestos abatement will occur on the 17th Floor, 3rd Floor through 1st Floor, Ground Floor, Basement and Sub-basement Floors. The HMC shall visit the site to field verify all quantities and Work site conditions prior to submission of his/her bid. Refer to drawing notes and Appendix "F" Scope of Work for additional information concerning the removal of thermal system insulation (TSI), floor tile, floor tile mastic, ceiling tiles, perimeter wall plaster and insulation, window sash disposal, fire proofing, fluorescent lamps and ballast, demolition and disposal of contaminated items such as ductwork, electrical conduit, concrete block walls, and asbestos debris to be removed. Replacement of abated materials will not be a part of the HMCs Work. No mechanical means shall be used to remove mastic from concrete floors.

The HMC shall have thirty (30) abatement personnel ready to man the project at "Notice to Proceed".

B. Unexpected Discovery of Asbestos

For any previously untested building components suspected to contain asbestos and located in areas impacted by the Work, the HMC shall notify the Government IH who will have the option of ordering up to three (3) bulk samples to be obtained and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program NVLAP)" and analyzed by the Polarized Light Microscopic (PLM) Method.

Any additional components identified as ACM that have been approved by the Government for removal shall be removed by the HMC and will be paid for by an equitable adjustment to the contract price under the CONTRACT CLAUSE titled "changes". Sampling activities undertaken to determine the presence of additional ACM shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, and Appendix C.

C. Quality Control

HMC Qualifications: The HMC, who is under contract to the general contractor, shall be a firm of established reputation. If HMC's firm is newly organized, the firm's personnel shall have previously established a reputation in the same field, in which it is regularly engaged in, and which maintains a regular work force of workmen skilled in asbestos abatement. HMC shall have performed similar Work on previous high rise occupied building projects. See paragraph entitled Submittals for more information which must be submitted and approved.

HMC shall perform all asbestos removal using techniques and procedures recognized by the asbestos industry as being safe and effective in the control of fiber release during removal of ACM. HMC is expected to perform all removal, cleaning, and disposal operations in a manner that would meet final air clearance standards for analysis by Transmission Electron Microscopy.

D. Stop Asbestos Removal

If the Government or Governments IH presents a "Stop Asbestos Removal Order", the HMC shall immediately stop all asbestos removal and maintain HEPA filtered air flow and adequately wet any exposed ACM. The HMC shall not resume any asbestos removal activity until authorized to do so by the Government or Governments IH. A stop asbestos removal order may be issued due to personnel, environmental or property safety risks or due to violations of rules, regulations or specifications. The HMC shall immediately stop all Work and shall have no right to project delay claims. Work stoppage will continue until conditions have been corrected to the satisfaction of the Government or the Governments IH. Standby time and costs for corrective actions will be borne by the HMC. The occurrence of any of the following events shall be reported immediately by the HMC in writing to the Governments IH and shall require the HMC to immediately stop asbestos removal activities and initiate fiber reduction activities:

1. =/> 0.01 f/cc outside a regulated area,

2. breach/break in regulated area barrier (s),

3. loss of negative pressure in the regulated area (<0.02" of water),

4. serious injury/death within the regulated area,

5. fire/safety emergency within the regulated area,

6. respiratory protection system failure,

7. power failure, or

8. excessive airborne fibers (>0.5 f/cc) in the regulated area when wet methods are being used. An over loaded sample will be considered as a failure.

E. Coordination with Other Trades and Disciplines

HMC shall coordinate all abatement activities with the General Contractor. Abatement Work will be conducted after normal working hours. Some phasing and or weekend Work may be required of the HMC. HMC shall provide Kansas City Air Quality and Governments IH with a copy of the amended project notification a minimum of seven work days prior to changing Work schedule.

F. Project Site Conditions

1. Use of Existing Facilities

Business must be able to function as usual during normal working hours.

2. Means of Egress

HMC shall establish and maintain emergency and fire exits from the Work areas.

3. Access to Work Area

Access to the Work areas shall be through decontamination areas. HMCs' workforce, Government representatives, inspectors and maintenance personnel shall have access to the Work areas.

4. Visitors

A logbook of all visitors to the Work area shall be kept. This logbook shall be provided to the Government as a closeout submittal for the project.

5. Worksite Postings

A copy of the current training certificate for the NESHAP trained responsible person and a copy of the current OSHA Asbestos Construction Standard (29 CFR 1926.1101) shall be posted at the Work site throughout the project. Also current OSHA Warning signs shall be posted on site, in inconspicuous, sufficient to prevent accidental unauthorized entry into the immediate Work area.

6. Use of Elevators

HMC shall coordinate his abatement activities with the general contractor and other HMC's that may require use of the same elevators. All HMCs may use existing freight elevators while performing their respective Work.

HMCs will have the dedicated use of the 8,000-lb. south freight elevator.

The building janitorial contractors require the use of one freight elevator between 4 PM and 9 PM. After 9 PM through 6 AM the HMCs may have the use of the second 6,000-lb. freight elevator subject to minimal usage for other building requirements. HMC shall repair any damage to the elevators at no expense to the Government.

G. Full Owner Occupancy

The Government will occupy the site and existing building during the entire period of construction. Cooperate fully with the Government during construction operations to minimize conflicts and to facilitate Government usage. Work is to be performed so as not to interfere with the Governments operation.

H. Employee Behavior

HMC and its employees are required to display good manners to building staff and occupants at all times while on Governments property. Complaints to Consultant or Owner regarding harassment, threatening behavior, poor personnel hygiene, or use of profanity or offensive language by any employee of the HMC may result in the suspension of abatement activities until the behavior problem is corrected or employee is removed from Governments property.

I. Phasing Sequence of Construction

Refer to Division 1 “General Requirements” and Phasing and Staging Reference Plans for staging and phasing requirements of the Work.

1.2 SUBMITTALS

The HMC shall submit when requested by the Contracting Officer, prior to the award of the contract and in accordance with this specification, data on the following items specified herein. Submit to the Contracting Officer for review a minimum of seven (7) copies bound into 3 ring binders, tabbed according to the submittal lettering system sequence, utilized herein. HMC can not start onsite Work until all submittal requirements of this specification has been approved. Any submittals received in any order other than that defined in section 1.2 herein, shall be rejected upon receipt.

A. REQUIRED FOR REVIEW PRIOR TO AWARD OF CONTRACT

1. Submit the following when requested by the Contracting Officer:

a. Name and address of all asbestos abatement projects performed by the HMC over the last two- (2) years, including name and telephone number of contract representative.

b. Daily logs and all air monitoring reports including final decontamination levels for the last five comparable asbestos abatement projects.

c. HMCs current Missouri Department of Natural Resources Registration.

d. Federal, State or Local Citations on Previous Projects.

The HMC and all Subcontractors shall submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has

been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company shall be provided.

B. REQUIRED FOR REVIEW PRIOR TO COMMENCE OF WORK

1. Submit to Contracting Officer prior to beginning Work. Do not commence Work until the following has been approved.

a. Permits and Notifications

Copy of written notification of asbestos abatement submitted to local, state, or federal regulatory authority with jurisdiction over this location.

b. Qualifications

The HMC shall furnish written qualifications and an organization report. Submit evidence of qualifications of the HMC, HMC's Project Manager / Designated Competent Person and Project Supervisor. HMC shall at least five years of experience in similar occupied high rise buildings. In addition to the previous required information the HMC shall provide the following the following information:

i. Designated IH (person assigned to project and firm name),

ii. Independent testing laboratory,

iii. All HMCs to be used including disposal transportation and disposal facility firms.

iv. The report shall include an organization chart showing the Contractor's staff organization for this project by name and title, chain of command, reporting relationship with all HMCs, and emergency contact telephone numbers.

v. The report shall be signed by the HMC and shall include the following statement:

"By signing this report I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926, 1101, 40 CFR 61, Subpart M, and federal, state and local requirements specified in the Project Specifications and for those asbestos abatement activities that they will be involved in."

c. Prior to removing or changing the Designated Project Manager / Competent Person or Project Supervisor from their duties the HMC shall submit qualifications of the replacement personnel for approval.

2. SUPERVISORY PERSONNEL

HMC must have an accredited Supervisor at each job site at all times, from mobilization to completion. Failure to have a Supervisor present shall result in termination of all asbestos abatement activities for the remainder of the shift, or

until a Supervisor is again present.

3. EMPLOYEE TRAINING

Name, experience, and applicable current asbestos certification for all supervisor(s) and workers who may work on this project. Include documentation of: current refresher certificate and current state certificates, medical clearance, and current respirator fit testing.

a. Training Requirements

The HMC shall establish a training program as specified by EPA Model Accreditation Plan (MAP), "Contractor/Supervisor or Worker training accreditation required by 40 CFR 763, Subpart E, Appendix C, the requirements of contained in 29 CFR 1926.1101, 40 CFR 61Subpart M, State of Missouri regulation 10 CSR 10-6, this specification and any other applicable federal state or local requirements. HMC employees shall complete the required training for the type of Work they are to perform shall provide one (1) Abatement Supervisor for every eight (8) to ten (10) abatement workers. All supervisors and workers shall follow HMC's Accident Prevention and Asbestos Hazard Abatement Plan. HMC shall provide the following information:

i. Designated Project Manager / Competent Person

The name, address, telephone number, and resume of the Contractor's Designated Project Manager / Competent Person shall be provided. Provide evidence that the full-time Designated Project Manager / Competent Person are qualified in accordance with 29 CFR 1926. 32 (f) and 29 CFR 1926.20(b)(2) has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, and Appendix C. HMC shall designate in writing who the Competent Person for this project.

The Designated Project Manager / Competent Person shall have five (5) years experience in the administration and supervision of asbestos abatement projects, including asbestos abatement Work in high rise occupied buildings. Additional requirements of the Designated Project Manager / Competent Person duties are as follows: exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement Work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, etc.

The duties of the Project Manager / Competent Person shall also include the following: ensure that all HMC employees training requirements, medical examinations and fit testing is current, controlling entry to and exit from the regulated area; supervising any employee exposure monitoring required by 29 CFR 1926.1101; ensuring that all employees working within a

regulated area wear the appropriate personal protective equipment (PPE), are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and contamination procedures specified; and ensuring that engineering controls in use are in proper operating conditions and are functioning properly. The Designated Project Manager / Competent Person shall be responsible for compliance with applicable federal, state and local requirements, the Contractor's Accident Prevention Plan and Asbestos Hazard Abatement Plan. The Contractor shall submit evidence that this person has a minimum of 5 years of on-the-job asbestos abatement supervision experience relevant to OSHA competent person requirements. The Designated Project Manager / Competent Person shall be onsite at all times during the conduct of this project.

ii. Project Supervisor
The Contractor shall provide the name, address, telephone number, and resume of the Project Supervisor who has the responsibility to implement the Accident Prevention Plan, the Asbestos Hazard Abatement Plan, and the authority to direct Work performed under this contract. Asbestos abatement supervisors shall meet the requirements contained in paragraph 1.2.2.3 (a) “Training Requirements”. The Contractor shall submit evidence that the Project Supervisor has a minimum of 4 years of on-the-job asbestos abatement experience relevant to supervisor responsibilities and have a minimum of 4 years on-the-job asbestos abatement experience commensurate with the responsibilities they will have on this project. Project Supervisor duties include supervision of the abatement supervisors, assisting the Project Manager / Competent Person, and ensuring that the HMCs Accident Prevention Plan, including the Asbestos Hazard Abatement Plan is being followed. The Project Supervisor shall visually inspect critical barriers continually for the duration of each Work shift.

iii. Abatement Supervisors

The Contractor shall provide the names of other supervisors who have the authority to direct Work performed under this contract. Asbestos abatement supervisors shall meet the requirements contained in Paragraph 1.2.2.3 (a) “Training Requirements”. The Contractor shall submit evidence that the Project Supervisor has a minimum of 2 years of on-the-job asbestos abatement experience relevant to supervisor responsibilities and have a minimum of 2 years on-the-job asbestos abatement experience commensurate with the responsibilities they will have on this project. Abatement supervisors duties includes following the HMCs Accident Prevention Plan, including the Asbestos Hazard Abatement Plan, providing supervision over eight (8) to ten (10) abatement workers, and to report any unsafe working conditions to his / her abatement supervisor. Abatement Supervisors shall visually inspect critical barriers continually for the duration of each Work shift.

iv. Asbestos Abatement Workers

Asbestos abatement workers shall meet the requirements contained in Paragraph 1.2.2.3 (a) “Training Requirements”. Asbestos abatement workers should have a minimum of six (6) months of asbestos abatement experience. Abatement workers shall follow the HMCs Accident Prevention Plan, including the Asbestos Hazard Abatement Plan. Workers shall report any unsafe working conditions to his / her Project Supervisor.

v. Worker Training and Certification of Worker Acknowledgment

Training documentation will be required for each employee who will perform OSHA Class I, Class II, Class III, or Class IV asbestos abatement operations. Such documentation shall be submitted with the form, attached herein, titled "Certificate of Workers Acknowledgment", to be completed for each employee. Most recent refresher training certificate, Missouri State Certificate for Asbestos Related Occupations, fit test and the written medical opinion shall be attached.

b. Written Medical Opinion

Each worker shall have a written medical opinion prepared and signed by a licensed physician indicating the following:

A summary of the examination results, the potential for an existing physiological condition that would place the employee at an increased risk of health impairment from exposure to asbestos, the ability of the individual to wear personal protective equipment, including respirators, while performing strenuous Work tasks under cold and/or heat stress conditions.

HMC shall sign a statement that all employees’ have been informed of the results of their examination, have been provided with a copy of the results, and have been informed of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure. The employee shall be informed of any medical condition that may result from asbestos exposure.

To comply with the “American Health Insurance Portability and Accounting Act (HIPAA) of 1996, the HMC shall submit a notarized statement, signed by an officer of the company, indicating that all employees working on this project have received a physical as required by Federal and State regulations. The HMC shall maintain a copy of all employee medical records onsite for review.

c. Respirator Fit Testing

HMC shall submit current respirator fit test documentation for each HMC employee that is required to wear a respirator on this project. HMC shall submit new fit test documentation every six (6) months during the duration of the project.

4 Accident Prevention Plan

The HMC shall develop and submit a written comprehensive site-specific Accident Prevention Plan. The Accident Prevention Plan shall address requirements covering onsite Work to be performed by the HMC and any other Contractor under his contract. The following shall be incorporated into the Accident Prevention Plan:

a. Asbestos Hazard Abatement Plan

The plan shall take into consideration all the individual asbestos abatement Work tasks necessary to complete the project. The plan shall be prepared, signed and dated by the HMC's Designated Competent Person, or Designated Project Manager/Supervisor.

b. The Asbestos Hazard Abatement Plan shall include, but not be limited to, the following:

i. The personal protective equipment to be used;

ii. Drawings showing the location and description of regulated areas including clean and dirty areas access tunnels, and decontamination unit (clean room, shower room, equipment room, and storage areas such as load-out unit)

iii. Initial exposure assessment in accordance with 29 CFR 1926.1101

iv. Level of supervision

v. Method of notification of other employers at the worksite;

vi. Abatement method(s) to be used and include containment and control procedures;

vii. Interface of trades involved in the construction;

viii. Sequencing of asbestos related Work;

ix. Storage and disposal procedures and plan;

x. Type of wetting agent and asbestos encapsulant to be used;

xi. Calculations to determine number of local exhaust equipment;

xii. Drawing(s) showing location(s) of local exhaust equipment and exhaust locations;

xiii. Drawing(s) showing location of control areas, decontamination and load out units;

xiv Load out method to be used;

xv. Emergency egress marking for exits from containment areas;
xvi. Air monitoring methods (personal)

xvii. A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber concentrations;

xviii. Fire and medical emergency response procedures;

xix. The security procedures to be used for all regulated areas.

xx. Respiratory Protection Program

xxi. Hazard Communication Program

xxii. Confined Space Entry Program

xxiii. Drug and Alcohol Abuse Policy

xxiv. First Aid and CPR Trained Persons

xxv. Dry removal of asbestos fire proofing.

5. Materials and Equipment

Manufacturers catalog data for all materials and equipment to be used in the Work, including brand name, model, capacity, performance characteristics and any other pertinent information. Test results and certificates from the manufacturer of encapsulate substantiating compliance with performance requirements of this specification.

6. Material Safety Date Sheets (MSDS)

Submit clean and legible copies of all material safety data sheets for any hazardous material, surfactant, encapsulates, solvents, cleaners, paints or other similar materials which will be used on this project.

7. Drawings

Descriptions, detail project drawings, and site layout to include phasing of abatement Work, worksite containment area techniques, local exhaust ventilation system locations, locations of decontamination units and load-out units, other temporary waste storage facility, access tunnels, location of temporary utilities (electrical, water, sewer) and boundaries of each regulated area.

8. Certificates of Compliance

Submit certifications or an attest statement signed by a company principal that vacuum, filtration, ventilation, and other equipment required to contain airborne asbestos fibers conform to and meet ANSI Z9.2.

9. Temporary Electrical Service

The HMC shall provide product data for electrical unit sub-panels, ground fault

circuit interrupters and lamps and fixtures to be use during this project. Electrical service shall comply with industry standards and applicable laws and regulations of authorities having jurisdiction including NEMA, NECA, and UL standards and regulations for temporary electrical service. HMC shall obtain all required certifications and permits. HMC shall coordinate connection of all temporary electrical power requirements with general contractor's electrical Subcontractor. Related cost shall be the responsibility of the HMC.

HMC shall keep temporary electrical services and facilities clean and neat in appearance.

Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progress. Do not overload temporary electrical facilities or permit them to interfere with progress. Take all necessary-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on site.

10. Disposal Facility, Transporter

a. The HMC shall provide written evidence that the landfill to be used is approved for asbestos disposal by the appropriate regulatory agencies. Copies of signed agreements between the HMC (including Subcontractors and transporters) and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste generated during the performance of this contract shall be provided.

b. Qualifications shall be provided for each Subcontractor or transporter to be used, indicating Previous experience in transport and disposal of asbestos waste to include all required state and local waste hauler requirements for asbestos. The Subcontractor and transporters shall meet the DOT requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as registration requirements of 49 CFR 107 and other applicable state or local requirements. The disposal facility shall meet the requirements of 40 CFR 61.154 or .155, as required in 40 CFR 61.150(b) and other applicable state or local requirements.

1.3 PRECONSTRUCTION CONFERENCE AND ONSITE SAFETY

The HMC and the HMC's Designated Project Manager/Supervisor shall meet with the Government prior to beginning Work at a safety pre-construction conference to discuss the details of the HMC's submitted Accident Prevention Plan to include the Asbestos Hazard Abatement Plan appendices. Deficiencies in the Accident Prevention Plan will be discussed and the Accident Prevention Plan shall be revised to correct the deficiencies and resubmitted for acceptance. The Government prior to the start of Work shall identify any changes required in the specification as a result of the Accident Prevention Plan specifically in the plan to allow for free discussion and acceptance.

Onsite Work shall not begin until the Accident Prevention Plan has been accepted. A copy of the written Accident Prevention Plan shall be maintained onsite. Changes and modifications to the accepted Accident Prevention Plan shall be made with the knowledge and concurrence of the Designated Project Supervisor, Designated Competent Person, and the Government. Should any unforeseen hazard become evident during the performance of the Work, the Designated Project Supervisor shall bring such hazard to the attention of the Government, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the HMC

to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Once accepted, the Accident Prevention Plan, including the Asbestos Hazard Abatement Plan will be enforced as if and addition to the contract. Disregarding the provisions of this contract or the accepted Accident Prevention Plan will be cause for stopping of Work, at the discretion of the Government until the matter has been rectified.

1.4 SECURITY

HMC shall adhere to security requirements of the Government and those contained herein. A visitor logbook shall be kept documenting entry into and out of the regulated area. Entry into regulated areas shall only be by personnel authorized by the Government and the HMC. Personnel authorized to enter regulated areas shall be trained, be medically evaluated, and wear the required personal protective equipment for the specific regulated area to be entered. This log shall be given to the Government at the close of the project.

1.5 HAZARD COMMUNICATION PROGRAM

A hazard communication program shall be established and implemented in accordance with 29 CFR 1926.59. Legible material safety data sheets (Meds) shall be provided for all hazardous materials brought onto the worksite. One copy shall be provided to the Government and 1 copy shall be included in the HMC's Hazard Communication Program. The HMC's Hazard Communication Program shall be included in the Accident Prevention Plan.

1.6 MEDICAL REQUIREMENTS

Medical requirements shall conform to 29 CFR 1926.1101(m) - Medical Surveillance

Before being exposed to airborne asbestos fibers, workers shall be provided with a medical examination as required by 29 CFR 1926.1101 and other pertinent state or local requirements. This requirement shall have been satisfied within the last 12 months. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. X-ray films of asbestos workers shall be identified to the consulting radiologist and medical record jackets shall be marked with the word "asbestos."

Complete and accurate records shall be maintained of each employee's medical examinations, medical records, and exposure data, as required by 29 CFR 1910.20 and 29 CFR 1926.1101(n) for a period of 30 years after termination of employment. Records of the required medical examinations and exposure data shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and an employee's physician upon request of the employee or former employee. A copy of the physician's approval for the employee to Work in the appropriate gear and to Work with potential asbestos exposure is required for each employee shall be maintained on file at the worksite for review.

A. Provide Information to the Physician

The HMC shall provide the following information in writing to the examining physician:

A copy of 29 CFR 1926.1101 and Appendices D, E, G, and I, a description of the affected employee's duties as they relate to the employee's exposure, the employee's representative exposure level or anticipated exposure level, a description of any personal protective and respiratory equipment used or to be used, information from previous medical examinations of the affected employee that is not otherwise available to the

examining physician.

1.7 PROJECT SPECIFIC TRAINING

A. Training Requirements

Prior to commencement of Work, each worker shall be instructed by the HMC's Designated Competent Person in the following project specific training:

The hazards and health effects of the specific types of ACM to be abated, the content and requirements of the HMC's Accident Prevention Plan to include the Asbestos Hazard Abatement Plan and site-specific safety and health precautions, Hazard Communication Program, hands-on training for each asbestos abatement technique to be employed, heat and/or cold stress monitoring specific to this project, Confined Space Entry Program, Fire Prevention, air monitoring program and procedures, Medical surveillance to include medical and exposure record-keeping procedures, the association of cigarette smoke and asbestos-related disease, security procedures, specific work practice controls and engineering controls required for each Class of Work in accordance with 29 CFR 1926.1101.

1.8 FIRST AID AND CPR TRAINED PERSONS

HMC shall designate the names of at least two (2) persons who are currently trained in first aid and CPR by the American Red Cross or other approved agency. Those persons who are currently trained in first aid and CPR shall be designated and shall be onsite at all times during site operations. The First Aid and CPR persons shall be trained in universal precautions and the use of PPE as described in Standard 29 CFR 1910.1030, Blood borne Pathogens. These persons may perform other duties but shall be immediately available to render first aid when needed. A copy of each designated person's current valid First Aid and CPR Certificate shall be provided in the Accident Prevention Plan.

1.9 CONFINED SPACE ENTRY PROGRAM

HMC shall establish in writing and implement a Confined Space Entry Program in accordance with 29 CFR 1910.146. HMCs Confined Space Entry Program shall address both permit-required and non-permit required confined spaces. HMC shall have their own trained and qualified rescue team on standby when confined space work is being conducted or contract with an outside firm that specializes in rescue work should a confined rescue be required.

1.10 RESPIRATORY PROTECTION PROGRAM

The HMC's Designated Person shall establish in writing, and implement a respiratory protection program in accordance with 29 CFR 1926.1101and 29 CFR 1910.134. The HMC's Designated Competent Person shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations encountered during the performance of the asbestos abatement Work. HMC’s Respiratory Protection Program shall be included as a part of the Accident Prevention Plan. The HMC's respiratory protection program shall include, but not be limited to, the following elements:

A. The company policy used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.

B. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.

C. Medical evaluation of each user to verify that the worker may be assigned to an activity where respiratory protection is required.

D. Training in the proper use and limitations of respirators.

E. Respirator fit-testing, i.e., quantitative, qualitative and individual functional fit checks.

F. Regular cleaning and disinfecting of respirators.

G. Routine inspection of respirators during cleaning and after each use when designated for emergency use.

H. Storage of respirators in convenient, clean, and sanitary locations.

I. Surveillance of regulated area conditions and degree of employee exposure (e.g., through air monitoring).

J. Regular evaluation of the continued effectiveness of the respiratory protection program.

K. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with valve function; prescription eye wear usage; contact lenses usage; etc.).

L. Proper training in putting on and removing respirators.

1. Respirator Protection Factors

The following table shall be used as a guideline for respirator selection criteria for asbestos removal projects:

Table 1: Respirator Selection Criteria		
Respirator Type	Protection Factor	Maximum Exposure fibers/cc
Air Purifying:		
Half Mask	10x	0.1
Full Mask	50x	0.5
PAPR	100x	1.0
Air Supplied:		
Continuous	100x	1.0
Pressure Demand	1000x	10.0
Self Contained	>1000x	>20.0

2. Respirator Selection and Use Requirements

The HMC shall provide respirators, and ensure that they are used as required by 29 CFR1926.1101 and in accordance with the manufacturer's recommendations. The National Institute for Occupational Safety and Health (NIOSH) shall approve respirators, under the provisions of 42 CFR 84, for use in environments containing airborne asbestos fibers. Personnel, who handle ACM, enter regulated areas that require the wearing of a respirator, or who are otherwise

carrying out abatement activities that require the wearing of a respirator, shall be provided with approved respirators that are fully protective of the worker at the measured or anticipated airborne asbestos concentration level to be encountered. For air-purifying respirators, the particulate filter portion of the cartridges or canister approved for use in airborne asbestos environments shall be high-efficiency particulate air (HEPA). The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type shall be made by the HMC's Designated Competent Person based on the measured or anticipated airborne asbestos fiber concentrations to be encountered. The HMCs Designated Competent Person shall have the authority to take immediate action to upgrade or downgrade respiratory type when there is an immediate danger to the health and safety of the wearer. Respirators shall be used in the following circumstances:

a. During all Class I asbestos jobs.

b. During all Class II Work where the ACM is not removed in a substantially intact state.

c. During all Class II and III Work which is not performed using wet methods. Respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and ACM is removed in an intact state.

d. During all Class II and III asbestos jobs where the HMC does not produce a negative exposure assessment.

e. During all Class III jobs where TSI or surfacing ACM is being disturbed.

f. During all Class IV Work performed within regulated areas where employees performing other Work are required to wear respirators.

g. During all Work where employees are exposed above the PEL-TWA or PEL-Excursion Limit.

h. In emergencies

3. Respirator Fit Testing

A qualitative or quantitative fit test conforming to 29 CFR 1926.1101, Appendix C shall be conducted by the HMC's Designated Competent Person or Designated Project Supervisor for each HMC employee required to wear a respirator, and for any and all authorized visitors who enter the regulated area where respirators are required to be worn. A respirator fit test shall be performed for each employee wearing a negative-pressure respirator prior to starting Work on this project and every 6 months thereafter. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn or of full-face piece air purifying respirators where they are worn at levels at which half-face piece air purifying respirators are permitted. If physical changes develop that will affect the fit, a new fit test for the worker shall be performed. Each time a respirator is put on and in accordance with the manufacturer’s recommendation employees will perform functional fit checks.

4. Class I Work

The HMC shall provide: (1) a tight-fitting, powered air purifying respirator equipped with high efficiency filters, or (2) a full-face piece supplied air respirator operated in the pressure demand mode, equipped with HEPA egress cartridges, or (3) an auxiliary positive pressure self-contained breathing apparatus, for all employees within the regulated area where Class I Work is being performed; provided that a negative exposure assessment has not been produced, and that the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full-face piece supplied air respirator, operated in the pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions, if the exposure assessment indicates exposure levels above 1 f/cc as an 8-hour time weighted average.

5. Class II and III Work

The HMC shall provide an air purifying respirator, other than a disposable respirator, equipped with high-efficiency filters whenever the employee performs Class II and III asbestos jobs where the HMC does not produce a negative exposure assessment and Class III jobs where TSI or surfacing ACM is being disturbed.

6. Sanitation

Employees who wear respirators shall be permitted to leave Work areas to wash their faces and respirator face pieces whenever necessary to prevent skin irritation associated with respirator use.

1.11 LICENSES, PERMITS AND NOTIFICATIONS

A. General Legal Requirements

Necessary licenses, permits and notifications shall be obtained in conjunction with the project's asbestos abatement, transportation and disposal actions and timely notification furnished of such actions as required by federal, state, regional, and local authorities. The HMC shall notify the appropriate regulatory office responsible for asbestos air emissions and the Government in writing, at least 20 days prior to the commencement of Work, in accordance with 40 CFR 61, Subpart M, and state and local requirements to include the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents. Notification shall be by Certified Mail, Return Receipt Requested. The HMC shall furnish copies of the receipts to the Government in writing, prior to the commencement of Work. HMC shall provide the Government and Governments IH a copy of any addendum or amendment to the original project notification. Acceptance by Kansas City Air Quality (KCAQ) of any addendum or amendment shall be provided to the Government and Governments IH. Dry removal of asbestos is a part of this project.

HMC shall notify both KCAQ and the EPA for approval. HMC shall provide a copy the of the dry removal notification to the Governments Representative. Do not begin dry removal work until authorized in writing by the EPA NESHAP Coordinator.

A copy of the rental company's written acknowledgment and agreement shall be provided as required by paragraph RENTAL EQUIPMENT. For licenses, permits, and notifications

that the HMC is responsible for obtaining, the HMC shall pay any associated fees or other costs incurred.

B. Litigation and Notification

The HMC shall notify the Government if any of the following occur:

1. The HMC or any of the HMCs are served with notice of violation of any law, regulation, permit or license which relates to this contract;

2. Proceedings are commenced which could lead to revocation of related permits or licenses; permits, licenses or other Government authorizations relating to this contract are revoked;

3. Litigation is commenced which would affect this contract;

4. The HMC or any of their Subcontractors become aware that their equipment or facilities are not in compliance or may fail to comply in the future with applicable laws or regulations.

1.12 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment shall be made available to the Government and authorized visitors for entry to the regulated area as needed. Government personnel and authorized visitors shall have appropriate training, equivalent to that provided to HMC employees, in the selection, fitting, and use of the required personal protective equipment. Government personnel and authorized visitors shall abide by the site safety and health requirements. HMC workers shall be provided with personal protective clothing and equipment and the HMC shall ensure that it is worn properly. The HMC's Designated Competent Person shall select and approve all the required personal protective clothing and equipment to be used.

A. Respirators

Respirators shall be in accordance with paragraph RESPIRATORY PROTECTION PROGRAM.

B. Whole Body Protection

Personnel exposed to airborne concentrations of asbestos that exceed the PELs, or for all OSHA Classes of Work for which a required negative exposure assessment is not produced, shall be provided with whole body protection and such protection shall be worn properly. The HMC's Designated Competent Person shall select and approve the whole body protection to be used. The Designated Project Supervisor shall examine work suits worn by employees at least once per Work shift for rips or tears that may occur during performance of Work. When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the work suit shall be immediately replaced. Disposable whole body protection shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Reusable whole body protection worn shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Recommendations made by the HMC's Designated Competent Person to downgrade whole body protection shall be submitted in writing to the Government. The HMC's Designated Competent Person, in consultation with the Designated Project Supervisor, has the authority to take immediate action to upgrade or downgrade whole body

protection when there is an immediate danger to the health and safety of the wearer.

1. Coveralls

   Disposable-breathable coveralls with a zipper front with attached hoods shall be provided. Sleeves shall be secured at the wrists and foot coverings secured at the ankles. Attached hood type head covering shall be provided.

2. Work Clothing

   An additional disposable coverall shall be provided when the abatement and control method employed does not provide for the exit from the regulated area directly into an attached decontamination unit.

   Cloth work clothes for wear under the protective coverall, and foot coverings, shall be provided when Work is being conducted in low temperature conditions. Cloth work clothes shall not be laundered but shall be disposed of as an asbestos contaminated waste.

3. Gloves

   Gloves shall be provided to protect the hands. Where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.) a suitable glove shall be provided and used.

4. Foot Coverings

   Cloth socks shall be provided and worn next to the skin. Foot wear, as required by OSHA that is appropriate for safety and health hazards in the area shall be worn. Rubber boots shall be used in moist or wet areas. Reusable footwear removed from the regulated area shall be thoroughly decontaminated or disposed of as ACM waste. Disposable protective foot covering shall be disposed of as ACM waste. If rubber boots are not used, disposable foot covering shall be provided.

5. Head Covering

   Protective headgear (hard hats) shall be provided as required. Hard hats shall only be removed from the regulated area after being thoroughly decontaminated.

6. Protective Eye Wear

   Eye protection provided shall be in accordance with ANSI Z87.1.

1.13 HYGIENE FACILITIES AND PRACTICES

The HMC shall establish a decontamination area for the decontamination of employees, material and equipment. The HMC shall ensure that employees enter and exit the regulated area through the decontamination area.

A. Shower Facilities

Shower facilities, when provided, shall comply with 29 CFR 1910.141(d) (3).

B. 3-Stage Decontamination Area

A temporary negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided. Utilization of prefabricated units shall have prior approval of the Government. The decontamination unit shall have an equipment room and a clean room separated by a shower that complies with 29 CFR 1910.141 (unless the HMC can demonstrate that such facilities are not feasible). Shower enclosures shall be leak proof, opaque and constructed of disposable or easily washable materials. Sheet plastic used in the construction of the decontamination unit shall be polyethylene of 6-mil minimum thickness. Sheet plastic shall comply with ASTM D 4397.

Equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area. Surfaces of the equipment room shall be wet wiped 2 times after each shift. Materials used for wet wiping shall be disposed of as asbestos contaminated waste. Two separate lockers shall be provided for each asbestos worker, one in the equipment room and one in the clean room. Hot water service may be secured from the building hot water system provided a back flow protection is installed by the HMC at the point of connection. Should sufficient hot water be unavailable, the HMC shall provide a minimum 40 gal. electric water heater with a minimum recovery rate of 20 gallons per hour. Provide a temperature controller for each showerhead. The HMC shall provide one (1) shower for every ten (10) workers as a minimum for each sex; Instantaneous type in-line water heater may be incorporated at each showerhead in lieu of hot water heater, upon approval by the Government. Flow and temperature controls shall be located within the shower and shall be adjustable by the user. The wastewater pump shall be sized for 1.25 times the showerhead flow-rate at a pressure head sufficient to satisfy the filter head loss and discharge line losses. The pump shall supply a minimum 25-gpm flow with 35 ft. of pressure head.

Used shower water shall be collected and filtered to remove asbestos contamination. Filters and residue shall be disposed of as asbestos contaminated material. Filtered water must be discharged into the public sanitary sewer system. Wastewater filters shall be installed in series with the first stage pore size of 20 microns and the second stage pore size of 5 microns. The floor of the decontamination unit's clean room shall be kept dry and clean at all times. Water from the shower shall not be allowed to wet the floor in the clean room. Surfaces of the clean room and shower shall be wet-wiped 2 times after each shift change with a disinfectant solution. Proper housekeeping and hygiene requirements shall be maintained. Soap and towels shall be provided for showering, washing and drying. Any cloth towels provided shall be disposed of as ACM waste or shall be laundered in accordance with 29 CFR 1926.1101.

C. Load-Out Unit

Provide a temporary load-out unit that is adjacent and connected to the regulated area. Utilization of prefabricated units shall have prior approval of the Government. The load-out unit shall be attached in a leak-tight manner to each regulated area. Surfaces of the load-out unit and access tunnel shall be adequately wet-wiped 2 times after each shift change. Materials used for wet wiping shall be disposed of as asbestos contaminated waste. The entry way between the Work area and the load-out area shall consist of both a confinement curtain and a rigid door. The floor of the load out shall be covered with as least two (2) layers of 6 mil poly. Clean load out floor and walls on a daily basis.

D. Single Stage Decontamination Area

A decontamination area (equipment room/area) shall be provided for Class I Work involving less than 25 feet or 10 square feet of TSI or surfacing ACM, and for Class II and Class III asbestos Work operations where exposures exceed the PELs or where there is no negative exposure assessment produced before the operation. The equipment room or area shall be adjacent to the regulated area for the decontamination of employees, material, and their equipment, which is asbestos contaminated. The equipment room or area shall consist of an area covered by an impermeable drop cloth on the floor or horizontal-working surface. The area must be of sufficient size to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area. Surfaces of the equipment room shall be wet wiped 2times after each shift. Materials used for wet wiping shall be disposed of as asbestos contaminated waste.

E. Decontamination Area Entry Procedures

The HMC shall ensure those employees entering the decontamination area through the clean room or clean area:

1. Remove street clothing in the clean room or clean area and deposit it in lockers that can be locked.

2. Put on protective clothing and respiratory protection before leaving the clean room or clean area.

3. Pass through the equipment room to enter the regulated area.

F. Decontamination Area Exit Procedures

The HMC shall ensure that the following procedures are followed:

1. Before leaving the regulated area, respirators shall be worn while employees remove all gross contamination and debris from their work clothing using a HEPA vacuum.

2. Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers for disposal and/or laundering.

3. Employees shall not remove their respirators in the equipment room.

4. Employees shall shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the Work is performed outdoors, the HMC shall ensure that employees engaged in Class I asbestos jobs:

   a. Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the Work area; or

   b. Remove they're contaminated work suits in the equipment room, without cleaning work suits, and proceed to a shower that is not adjacent to the

Work area.

5. After showering, employees shall enter the clean room before changing into street clothes.

G. Lunch Areas

The HMC shall provide lunch areas in which the airborne concentrations of asbestos are below 0.01 f/cc.

H. Smoking

Smoking, if allowed by the HMC, shall only be permitted in designated areas approved by the Government.

1.14 REGULATED AREAS

All Class I, II, and III asbestos Work shall be conducted within regulated areas. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they shall demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The HMC shall control access to regulated areas, ensure that only authorized personnel enter, and verify that HMC required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

1.15 WARNING SIGNS AND TAPE

Warning signs and tape printed in English, and other languages as needed, shall be provided at the regulated boundaries and entrances to regulated areas. The HMC shall ensure that all personnel working in areas contiguous to regulated areas comprehend the warning signs. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area. Warning signs shall be in vertical format conforming to 29 CFR 1910 and 29 CFR 1926.1101, a minimum of 20 by 14 inches, and displaying the following:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

Spacing between lines shall be at least equal to the height of the upper of any two lines. Warning tape shall be provided as needed. Warning tape shall be fastened on a minimum of 10-foot centers and at least 3 feet off ground/floor height.

Decontamination unit signage shall be as shown.

Sign A:

NO FOOD
BEVERAGES OR
TOBACCO
PERMITTED

Sign B:

ALL PERSONS SHALL
REMOVE STREET CLOTHING
AND PUT ON PROTECTIVE CLOTHING
AND RESPIRATOR BEFORE ENTERING
THE WORK AREA

Sign C

ALL PERSONS SHALL SHOWER
IMMEDIATELY AFTER EXITING WORK
AREA AND BEFORE ENTERING THE CLEAN ROOM

Provide signs in English, Spanish and other languages required by contract. Install at eye level.

1.16 WARNING LABELS

Disposal bags shall be 6 mil thick leak-tight polyethylene bags. Three warning labels shall be affixed to all asbestos disposal containers and bags used to contain asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements are acceptable. Peel and stick type labels are expressly prohibited. Warning labels shall conform to 29 CFR 1926.1101 and shall be of sufficient size to be clearly legible displaying the following legend:

First Label: (OSHA)

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS

Second Label: (DOT)

ASBESTOS
9,
NA 2212
PG III, RQ

Third Label: (NESHAP)

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

Owners Name
Address
Contractor & Transporter
Address

1.17 LOCAL EXHAUST VENTILATION

Local exhaust ventilation units shall conform to ANSI Z9.2 and 29 CFR 1926.1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled.

Ventilation units shall be equipped with magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed. Each unit shall have a table indicating the usable air-handling capacity for the various static pressure readings on the magnehelic gauge affixed near the gauge for reference. Or the magnehelic reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (CFM) air delivery at that point. Each unit shall have safety, warning devices and auto shut down features. HMC shall provide his/her calculations that determine the number of local exhaust ventilation units required.

1.18 TOOLS

Vacuums shall be leak proof to the filter, equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system, or has otherwise been approved for use by the Government. Residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

1.19 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the HMC's notification shall be obtained from the rental agency.

1.20 AIR MONITORING EQUIPMENT

The HMC's Designated Competent Person or Subcontractors Industrial Hygienist shall approve personal air monitoring equipment to be used to collect samples. The equipment shall include, but shall not be limited to:

A. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit, which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

B. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands, to be used with low flow pumps in accordance with 29 CFR 1926.1101 for personal air sampling.

C. Appropriate plastic tubing to connect the air-sampling pump to the selected filter cassette. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

1.21 PORTABLE FIRE EXTINGUISHERS

In accordance with 29 CFR 1926-150, HMC shall supply fire extinguishers for use inside and outside the Work area. HMC shall ensure that all employees have been instructed in the general procedures of the fire extinguisher use and the hazards involved with just beginning fire fighting. Portable fire extinguishers containing "Carbon Tetrachloride" and other toxic vaporizing liquid fire extinguishers are prohibited. All fire extinguishers must be inspected annually and maintained in accordance with NFPA No.10A-1970.

A. Type and Number of Fire Extinguishers

A fire extinguisher rate not less than 2A must be provided for each 3,000 square feet of protected building area. At least one fire extinguisher must be located adjacent to each stairwell.

B. Travel Distance to Fire Extinguisher

Travel distance from any part of the protected area to the nearest fire extinguisher must not exceed 100 feet.

1.22 Smoking Areas

Smoking will be allowed only in Government designated smoking areas.

1.23 HOT WORK PERMIT

HMC shall notify Government, General Contractor, and fire department of torching and cutting schedule. HMC will complete a Hot Work Permit and submit to the Government for approval. Notify the general contractor and fire department when approval has been issued. Safety glasses shall be supplied to all personnel working in the torching and cutting area. Prior to conducting torching and cutting activities, Contractor shall utilize fire-retardant polyethylene sheeting in all areas in which hot Work activities will occur. A nonflammable blanket or material shall placed under and ten (10) feet beyond the immediate torch or cutting area in all directions to contain the integrity of the containment. HMC shall apply the process to walls in the affected area. HMC shall designate an individual at each torching and cutting Work site as a fire watch. This person's sole responsibility shall be to monitor the hot Work and have immediate access to the fire extinguisher located at each torch and cutting Work site. All flammable and combustible materials shall be removed from the torching and cutting areas. HMC shall train welders, cutters, and their supervisors in the safe operation of their equipment, safe welding/cutting practices, and welding/cutting respiratory protection and fire protection.

1.24 EXPENDABLE SUPPLIES

A. Glovebag

Glovebags shall be provided as described in 29 CFR 1926.1101. The glovebag assembly shall be 6 mil thick plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

B. Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container shall be provided.

C. Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926.1101, 40 CFR 61, and state regulations where the ACM will be transported to and disposed of.

D. Disposal Bags

Leak-tight bags, clear 6 mil thick, and complying with applicable Federal and state regulations, shall be provided for placement of asbestos generated waste where appropriate.

E. Sheet Plastic

Sheet plastic will be polyethylene of 6-mil minimum thickness for wall and floor applications and shall be provided in the largest sheet size necessary to minimize seams, as indicated on the project drawings. No four (4) mill poly will be allowed on site. Film shall be clear and conform to ASTM D 4397, except as specified below:

1. Flame Resistant

Where a potential for fire exists, flame-resistant sheets shall be provided. Film shall be 6 mil frosted or black and shall conform to the requirements of NFPA 701.

2. Reinforced

Reinforced sheets shall be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701. Film shall not be less than 6 mil in thickness.

F. Amended Water

Amended water shall meet the requirements of ASTM D 1331.

G. Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 140 degrees F. All mastic removal solvents shall be classified as no odor.

H. Leak-tight Wrapping

Two separate layers of 6 mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, ductwork, insulated pipe segments and other materials too large to be placed in disposal bags. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape and off setting seams.

I. Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8-inch thick, acrylic sheet, 24 by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows shall be sealed leak-tight with industrial grade duct tape.

J. Wetting Agents

Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS.

1.24 MISCELLANEOUS ITEMS

A sufficient quantity of other items, such as, but not limited to: scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, other tools, scaffolding, staging, enclosed chutes, ladders, lumber necessary for the construction of containment's, UL approved temporary electrical equipment, material and cords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, logbooks, log forms, markers with indelible ink, spray paint in bright color to mark areas, project boundary fencing, etc., shall be provided.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

A sealant shall penetrate the asbestos containing material (ACM), withstand moderate impact, be flexible and flame retardant, resist deterioration over time, have pigmentation and be non-toxic. Apply sealant with airless spray equipment.

2.2 EQUIPMENT

Equipment, including protective clothing and respirators, used in the execution of this contract and provided to visitors to the site, shall comply with ASTM E 849 and with the applicable Federal, State and local regulations. Respirators and the HMC's employee Respirator Program shall conform to the OSHA requirements in 29 CFR 1910.134.

2.3 AMENDED WATER

A wetting agent shall consist of a minimum of 50% polyoxyethylene ester and 50% polyoxyethylene ether. There shall be one ounce of wetting agent per five (5) gallons of water.

2.4 ELECTRICAL SERVICE

Comply with all applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electrical service. Provide electrical service to temporary electrical unit sub-panel with 2 pole circuit breakers or fused disconnect connected to the to the buildings main distribution panel. Sub-panel and disconnect shall be sized and equipped to accommodate electrical equipment required for completion of the Work. Electrical connections to

the building's main distribution panel are to be coordinated with the general contractor's electrical

contractor. Cost that relates to the connection of the temporary electrical panels to the buildings electrical power would be the responsibility of the HMC.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Asbestos abatement Work tasks shall be performed as shown on the plans and drawings, as summarized in paragraph DESCRIPTION OF WORK and Appendix E, the HMC's Accident Prevention Plan, and Asbestos Hazard Abatement Plan.

The HMC shall use the engineering controls and Work practices required in 29 CFR 1926.1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment as specified. The HMC shall not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area.

Personnel of other trades, not engaged in asbestos abatement activities, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the HMC's Accident Prevention Plan are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910.147 and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. The HMC shall stop abatement Work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. The HMC shall correct the condition to the satisfaction of the Government, including visual inspection and air sampling. Work shall resume only upon notification by the Government. Corrective actions shall be documented.

3.2 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

Asbestos abatement shall be performed without damage to or contamination of adjacent Work or areas. Where such Work or area is damaged or contaminated, as verified by the Government using visual inspection or sample analysis, it shall be restored to its original condition or decontaminated by the HMC at no expense to the Government, as deemed appropriate by the Government. This includes inadvertent spill of dust or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, Work shall stop in all effected areas immediately and the spill area shall be cleaned. When satisfactory visual inspection and air sampling analysis results are obtained and have been evaluated by the Government's IH and the Designated Project Manager/Competent Person Work shall proceed.

3.3 OBJECTS

A. Removal of Mobile Objects

The Government will remove mobile objects, furniture, and equipment from the area of Work before asbestos abatement Work begins.

B. Stationary Objects

Stationary objects and equipment shall remain in place and shall be pre-cleaned using

HEPA vacuum followed by adequate wet wiping. Stationary objects and furnishings shall be covered with 2 layers of 6 mil polyethylene and edges sealed with duct tape.

C. Reinstallation of Mobile Objects

At the conclusion of the asbestos abatement Work in each regulated area, and after meeting the final clearance requirements for each regulated area, objects previously removed shall be transferred back to the cleaned area, from which they came and reinstalled.

3.4 BUILDING VENTILATION SYSTEM AND CRITICAL BARRIERS

Building ventilating systems supplying air into or returning air out of a regulated area shall be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910.147. Air-tight critical barriers shall be installed on building ventilating openings located inside the regulated area that supply or return air from the building ventilation system or serve to exhaust air from the building. The critical barriers shall consist of air-tight rigid covers for building ventilation supply and exhaust grills where the ventilation system is required to remain in service during abatement or 2 layers of 6 mil polyethylene. Edges to wall, ceiling and floor surfaces shall be sealed with industrial grade duct tape.

3.5 TEMPORARY PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

A. General

All fan units utilized for this project shall be HEPA filtered. Fan units shall be operational 24/7 until clearance criteria is met. Each unit shall be equipped with a working magnehelic gauge and an elapsed time meter. Each unit shall have a table attached to the unit indicating the useable air handling capacity of the unit in Cubic feet per minute (CFM) for various static pressure readings. HMC shall use the filter replacement point to calculate the number of machines needed for the project. Safety and warning devices shall be operational. All HEPA filtered fan units must be approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). HMC shall have a minimum of four (4) HEPA filtered fan units on site to be used as backup units.

B. Natural Processes

HMC shall take into affect the natural forces exerted upon a building when calculating negative pressure. Items such as stack effect, existing ductwork, elevators and infiltration can decrease or increase the negative pressure of a building.

C. Relative Pressure in Work Area

To compensate for natural processes on the 17th, 3rd, 2nd, 1st, Ground, Basement and Sub-basement floors the HMC shall maintain negative pressure fan units at and maintain a minimum of 0.02 inches of water column relative to adjacent, unsealed areas.

D. Establishing the Pressure Differential

HEPA fan units shall be exhausted to the exterior of the building. If this is not possible then the HEPA fan units shall be vented into the inlet of a second unit. The second unit then can be vented into a controlled area in the building. This method can only be used if written approval is given from the Government.

E. Positive Pressure Seals

To reduce the spread of asbestos contamination and mastic remover odor to elevators and other floors the HMC shall install positive pressure seals at these entry points. HMC shall construct and seal a solid barrier in front of all passenger elevators.

3.6 TEMPORARY ELECTRICAL SERVICE

HMC shall lockout all existing or remaining electrical power to or through the Work area. Unless specifically noted otherwise existing electrical power and lighting circuits to the Work area are not to be used. All electrical power and lighting to the Work area and decontamination facilities are to be provided from temporary electrical power panel described below. Coordinate lockout/tag out with general contractor's electrical contractor. Electrical service shall comply with NEMA, NECA and UL standards and regulations for temporary electrical service.

A. Lock Out

Lock out all existing power to or through the Work area as described below. Unless specifically noted otherwise existing power and lighting circuits to the Work Area are not to be used. All power and lighting to the Work Area and Decontamination facilities are to be provided from temporary electrical panel described below.

1. Comply with requirements to OSHA 29 CFR 1910.147 the control of hazardous energy lockout/tag out.

2. HMC shall ensure that electrical contractor has denergized all power serving power or lighting circuits in the Work area. Tag out breakers with notation "DANGER circuit being worked on". Lock panel(s) and have all keys under control of authorized person who has locked the panel(s).

3. If circuits cannot be shut down, all asbestos abatement Work in the vicinity of the live circuits are to be performed dry. Label at intervals of 4-feet" on center with signs reading, "DANGER live electric circuit. Notifications and procedures for dry removal are to be followed.

4. Lock out power to electrical equipment located in the Work area, and to any fans or other equipment that is going to be worked on.

B. Temporary Electrical Panel

Provide temporary electrical panel sized and equipped to accommodate electrical equipment and lighting required by the Work. Protect with circuit breaker or fused disconnect. Locate temporary panel(s) outside of the contained Work area. Temporary electrical panel is to be installed by a license electrician under contract to the general contractor.

C. Power Distribution System

Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

D. Circuit Protection

Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel. Do not use outlet type GFCI devices.

E. Temporary Wiring

In the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide liquid tight enclosures or boxes for wiring devices.

F. Number of Branch Circuits

Provide sufficient branch circuits as required by the Work. Branch circuits are to originate at temporary electrical panel. At minimum provide the following:

1. One Circuit for each HEPA filtered fan unit

2. For power tools and task lighting, provide one temporary 4-gang outlet in the following locations. Provide a separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).

3. One outlet in the Work area for each 2500 square feet of Work area

4. One outlet at each decontamination unit, located in equipment room

G. 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use while conducting visual inspection and/or air sampling during the Work as follows:

1. Five inside each Work area

   One outside of each Decontamination Unit.

2. One at each exhaust location for HEPA filtered fan units where possible.

H. Temporary Lighting:

1. Lock out: Lock out existing power to lighting circuits in Work Area as described above. Unless specifically noted otherwise existing lighting circuits to the Work Area are not to be used. All lighting to the Work Area and Decontamination facilities is to be provided from temporary electrical panel described above.

2. Provide the following or equivalent where natural lighting or existing building lighting does not meet the required light level: One 200-watt incandescent lamp per 1000 square of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stairways and at ladder runs, provide one lamp minimum per story, located to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

3. Provide lighting in areas where Work is being preformed as required supplying a 100 foot candle minimum light level.
4. Provide lighting in any area being subjected to a visual inspection as required to supply a 100 foot candle minimum light level.

5. Provide lighting in the Decontamination Unit as required to supply a 50 foot candle minimum light level.

6. Number of Lighting Circuits: Provide sufficient lighting circuits as required by the Work. Lighting circuits are to originate at temporary electrical panel.

7. Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.

3.7 PRECLEANING

Work shall be performed while wearing PPE. As a minimum, this shall include disposable coveralls, hood, boots and negative pressure, air purifying half mask respirators with HEPA disposable cartridges. Respiratory protection shall be upgraded whenever airborne fiber levels within the Work area exceed the maximum levels indicated in Table 1. Surfaces shall be cleaned by HEPA vacuum and adequately wet wiped prior to establishment of containment.

3.8 SCAFFOLDING

HMC shall provide and erect scaffolding in the area(s) indicated on drawings or as needed. Scaffolding shall be erected as stationary scaffolding (without wheels) and equipped as required by OSHA standards for elevated platforms and ladders. HMC shall protect existing floor and wall surfaces below scaffolding setup areas. Construct temporary wood/metal walls, as needed, for the purpose of supporting the containment walls up to the ceiling deck. Drape rubber roofing membrane glued water tight at the seams (or equivalent material) over the floor of the scaffold and up the walls a minimum of two feet on all sides. Drape 10-mil poly over the membrane and up the wall a minimum of three (3) feet. Drape 6-mil poly from the ceiling to the rubber membrane, attached to the temporary wood/metal stud wall. Wall poly shall over lap the floor rubber membrane by three (3) feet minimum. All poly shall be glued and duct taped securely in place. Use the same procedures for the application of the second and third layers of poly. HMC shall conduct visual observations to determine if the containment floor has been breached. These visual observations shall be conducted a minimum of four (4) times during the Work shift or as needed.

3.9 METHODS OF COMPLIANCE

A. Mandated Practices

The HMC shall employ proper handling procedures in accordance with 29 CFR 1926 and 40 CFR 61, Subpart M, and the specified requirements. The specific abatement techniques and items identified shall be detailed in the HMC's Asbestos Hazard Abatement Plan including, but not limited to, details of construction materials, equipment, and handling procedures. The HMC shall use the following engineering controls and Work practices in all operations, regardless of the levels of exposure:

1. Vacuum cleaners equipped with HEPA filters to collect debris and dust containing ACM.

2. Wet methods or wetting agents to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup; except where it can be demonstrated that the use of wet methods is unfeasible due to, for example, the creation of electrical hazards, equipment malfunction, and in roofing.

3. Prompt clean up and disposal in leak-tight containers of wastes and debris contaminated with asbestos.

4. Inspection and repair of polyethylene in Work and high traffic areas.

5. Cleaning of equipment and surfaces of containers filled with ACM prior to removing them from the equipment room or area.

B. Control Methods

The HMC shall use the following control methods to comply with the PELs:

1. Local exhaust ventilation equipped with HEPA filter dust collection systems

2. Enclosure or isolation of processes producing asbestos dust;

3. Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

4. Use of other Work practices and engineering controls;

5. Where the feasible engineering and Work practice controls described above are not sufficient to reduce employee exposure to or below the PELs, the HMC shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with paragraph, RESPIRATORY PROTECTION PROGRAM.

C. Unacceptable Practices

The following Work practices and engineering controls shall not be used for Work related to asbestos or for Work which disturbs ACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

1. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

2. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

3. Dry sweeping, shoveling, or other dry clean up of dust and debris containing ACM.

4. Employee rotation as a means of reducing employee exposure to asbestos.

D. Class I Work Procedures

In addition to requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and Work practices shall be used:

1. A Competent Person shall supervise the installation and operation of the control system;

2. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, the HMC shall place critical barriers over all openings to the regulated area;

3. HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or airtight rigid covers;

4. Impermeable drop cloths (6 mil or greater thickness) shall be placed on surfaces beneath all removal activity. Floor drop cloths shall extend a minimum of six (6) feet in all directions around the glovebag area;

5. Objects within the regulated area shall be handled as specified in paragraph OBJECTS.

6. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area shall be ventilated to move contaminated air away from the employee's breathing zone toward a HEPA unit or collection device.

7. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, a negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided. Utilization of prefabricated units shall have prior approval of the Government. The decontamination unit shall have an equipment room and a clean room separated by a shower that complies with 29 CFR 1910.141 (unless the HMC can demonstrate that such facilities are not feasible).

E. Specific Control Methods for Class I Work

In addition to requirements of paragraph Class I Work Procedures, Class I asbestos Work shall be performed using the control methods identified in the subparagraphs below. HMC shall choose the most appropriate control method for each Class I task and propose the methods to be used in the Asbestos Hazard Abatement Plan. If multiple control/removal methods are chosen, indicate the type of ACM and the locations associated with each method to be used.

1. Negative Pressure Enclosure (NPE) System

The NPE system shall provide at least 4 air changes per hour inside the containment. The local exhaust unit equipment shall be operated 24 hours per day 7 days a week (24/7) until the containment is removed, and shall be leak-proof to the filter and equipped with HEPA filters. Pressurize space with exhaust from HEPA filtered fan unit. Air movement shall be directed away from the employees and toward a HEPA filtration device. The NPE shall be smoke tested

for leaks at the beginning of each shift.

Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic manometric recording instrument. Pressure differential recordings shall be provided daily on the same day collected. The HMC's Designated Project Manager/Supervisor and the Government's IH shall review readings prior to submittal. The Government shall be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system shall not be used as the local exhaust system for the regulated area. The local exhaust system shall terminate outdoors unless the Government allows an alternate arrangement. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.

2. Removal of Fireproofing Spray-On Surfacing Material

Adequately wet mist surface of fireproofing or surfacing material, initially and during removal procedures. Remove sprayed-on fireproofing or surfacing from all structural members or underlying surfaces. HMC shall not allow fireproofing to drop more than eight (8) feet. Brush, HEPA vacuum and wet wipe surfaces to remove residual material. Place removed material into approved disposal containers. Inspect and reclean area as necessary. Apply tinted encapsulant to structural members and surfaces that will remain in the renovated building. Inspect and reapply encapsulant as necessary. Encapsulant to be used shall be identified in the Asbestos Hazard Abatement Plan with appropriate MSDS. Check for compatibility with substrates and any materials to be subsequently applied to clean surfaces. To reduce the possible higher fiber counts and eliminates the bulk of the fire proofing from falling to the floor during removal operations, the HMC shall construct a collection device to be used with bulk removal of fire proofing.

3. Removal of Over Spray

HMC shall remove all contaminated ductwork and pipe insulation found. Ductwork and ductwork supports shall be removed and disposed of as a contaminated material. Over spray shall be cleaned from concrete and concrete block walls scheduled to remain. Interior structural columns shall have plaster/gypsum board materials removed for access to over spray. All electrical conduit, ceiling tile support system, diffusers, and light fixtures shall be removed and disposed of as contaminated waste. Fluorescent light bulbs shall be collected and sent to a lamp recycler for disposal as a hazardous waste.

4. Dry Removal of Fire Proofing

The project entails the removal of asbestos containing fire proofing from ceiling decks located in transformer rooms and electrical/telephone closets. Transformer Rooms contain 13.2 kva transformers. Due to the nature of the nature of the areas wetting the fire proofing poses a health and safety issue. These issues force a dry removal technique. Dry removal will produce additional fiber release which will lead to higher ambient concentrations of fibers and greater fiber fallout in the work area.

Operations to remove this material will require the standard asbestos regulations

to be followed as well as attention paid to preventing health injury due to heat stress, excess exposure to asbestos fibers and ambient control o asbestos fibers to prevent migration of the fibers to adjacent areas. Dry removal will be considered as a life threatening operation and all appropriate precautions will be taken to address possible heat stress.

The site, equipment and procedures will be set up and available for review by the Owners IH before the work proceeds. The site decontamination area and all equipment will be maintained to OSHA, EPA and any other regulating agency's standards in control of this project.

HMC shall restrict access to area where dry removal is being conducted. Post warning signs as required by OSHA or other applicable regulations. Provide workers on or in the transformer rooms and /or electrical closets with appropriate protective equipment. Keep work area free of accumulated fire proofing. Bag the fire proofing dry. Before bagged fire proofing is taken from load out area, wet the fire proofing is each bag. Wet wipe bagged fire proofing prior to placing into disposal bag. Provide local ventilation for each area where fry removal is being removed or otherwise disturbed.

HMC shall monitor workers temperature stress through pulse rate and oral temperature at the beginning of each shift to establish a rest pulse. The pulse shall be taken as soon as the worker leaves the decontamination unit. The pulse rate shall be taken again before the worker returns to the containment to determine if the worker has recovered. HMC shall monitor the temperature inside the containment. Should the temperature rise above 105 degrees Fahrenheit additional options should be considered to cooler the containment back to 105 Fahrenheit or less.

5. Glovebag Systems

The glovebag system shall be used to remove ACM from straight runs of piping and elbows and other connections. Glovebags shall be used without modification and shall be smoke-tested for leaks and any leaks sealed prior to use. Glovebags shall be installed to completely cover the circumference of pipe or other structures where the Work is to be done. Glovebags shall be used only once and shall not be moved. Glovebags shall not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, removing air within them using a HEPA vacuum shall collapse glovebags. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least 2 persons shall perform Class I glovebag removal. Asbestos regulated Work areas shall be established as specified and shown on detailed drawings and plans for glovebag abatement. Designated boundary limits for the asbestos Work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained, including area signage and boundary warning tape.

a. In addition to requirements for negative pressure glovebag systems above, the HMC shall attach HEPA vacuum systems or other devices to the bag to prevent collapse during removal of ACM from straight runs of piping and elbows and other connections.

6. Mini-Enclosures

Mini-containment (small walk-in enclosure) to accommodate no more than 2 persons may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices. The mini-enclosure shall be inspected for leaks and smoke tested before each use. Air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

F. Class II Work

Class II Work may be performed using a control method allowed for Class I Work, such as a negative pressure enclosure system. In addition to the requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and Work practices shall be used:

1. A Competent Person shall supervise the Work.

2. For indoor Work, critical barriers shall be placed over all openings to the regulated area.

3. Impermeable drop cloths shall be placed on surfaces beneath all Work activity.

G. Specific Control Methods for Class II Work

In addition to requirements of paragraph Class II Work, Class II Work shall be performed using the following methods:

1. Floor Tile Removal

When removing vinyl and asphalt flooring materials, which contain ACM, the HMC shall use the following practices. All floor tile shall be left in place and covered with a minimum of two (2) layers of 6 mil poly until all asbestos abatement above the floor tile has occurred. HMC shall locate and seal all holes, cracks, voids, etc, that may allow water to seep to the floor below. The Government does not want any leaks to lower finished or occupied floors.

Resilient sheeting shall be removed by adequately wet methods. Floor tiles shall be removed intact (if possible); wetting is not required when tiles are heated and removed intact. Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet methods. Mechanical chipping is prohibited unless performed in a negative pressure enclosure. Dry sweeping is prohibited. The HMC shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean floors. Poly splashguards shall be placed on all wall surfaces to a height of four (4) feet. Poly splash guards shall be 6 mil poly.

Removal of the tiles by heating with a “pan-style” heater is acceptable if this method is chosen; adequate precautions shall be taken by the HMC to prevent burns or electrical shock. Once the tile has been heated sufficiently to remove it, care shall be taken to prevent breaking tile. HMC shall be responsible for assuring that adequate electrical service is available. HMC shall utilize the

general contractor's certified electrical contractor for all connections to Governments electrical service.
Removal of the tiles by physically chipping them, is acceptable if this method is chosen, all electrical power to the area shall be locked out and tagged, to prevent electrical shock. The tiles and chipping tools shall be thoroughly wetted with amended water before and during the chipping process. All floor tiles shall be double bagged prior to disposal.

Removal of the tiles by "shot-blasting' is acceptable, only if the shot-blasting equipment has been fitted with an effective HEPA filter and the resulting dust is maintained thoroughly wet with amended water.

2. Work Area Isolation

The HMC shall isolate the Work area and regulate access for the duration of the removal process. HMC shall either shutoff or seal off all ventilation into and out of the Work area with a minimum of 2 layers of 6 mil plastic. OSHA WARNING signs shall be posted just outside the Work area in inconspicuously locations sufficient to prevent accidental unauthorized entry into the Work area.

Removal of the mastic by physically scraping is acceptable. If this method is chosen, amended water shall be used to keep all asbestos-containing material saturated during the removal. HMC shall use a no odor mastic remover when removing floor tile mastic. Floor tile mastic removal shall be conducted under negative pressure and vented to exterior areas of the building. HMC shall visually inspect all floor areas where floor tile removal has occurred to find voids, holes, cracks or other imperfections in the floor that would allow floor tile mastic remover to penetrate through the floor. HMC shall fill all voids and holes in a manner to stop floor tile mastic remover from draining into or through the area. Areas around floor cracks shall be hand scrubbed to eliminate possible seepage to areas below abatement control area.

PPE shall be worn in strict accordance with the specifications and recommendation based on careful review of the MSDS'. As a minimum, disposable coveralls fitted with hoods and boots, rubber gloves, eye protection and half-mask air purifying negative pressure respirators equipped with piggy-back organic vapor cartridge (activated charcoal) and type H (HEPA) filters shall be worn. Higher levels of personal protection shall be worn when dictated by the MSDS or determined through air monitoring by the Government's IH.

Throughout the removal operation, containment areas shall remain separated from adjacent building space while solvent procedures are in use. To dissolve the mastic the least amount of solvent shall be applied. Mops and/or sponges shall be used to collect the dissolved mastic. All materials (sponges, mops, rags) and solvent used to remove the mastic shall be disposed of in airtight, solvent impervious containers.

During and after the solvent use, exhaust ventilation shall be used. Air within the Work area shall be HEPA filtered and exhausted outside of the building. The NPE system shall provide at least 6 air changes per hour inside the containment during all mastic removal operations. Following clearance, but prior to removal of any critical barriers, the Work area air shall continue to be ventilated to the outside of the building for a sufficient period of time to eliminate any solvent odor.

3. Acoustical Ceiling Tiles

Adequately wet/mist ceiling tile surfaces (top and bottom) with amended water initially and during removal procedures. Remove ceiling tiles intact and keep tiles wet. Place removed asbestos containing ceiling tiles into an approved container for disposal. HMC shall remove support system including but limited to hangers, tracks, and T-bars. Support system shall be disposed of as contaminated waste. HMC shall dispose of contaminated tracks, hanger support wire and T-bars in approved containers. HMC should be aware of hidden overhead debris such as pieces of concrete materials remaining from previous Work activities.

4. Other Class II Jobs

The HMC shall use the following Work practices when performing Class II removal of ACM: The material shall be thoroughly wetted with amended water prior and during its removal. The material shall be removed in an intact state. Cutting, abrading or breaking the material is prohibited. The ACM removed shall be immediately placed in 6-mil bags or wrapped with 6-mil plastic.

5. Specific Control Methods for Class IV Work

Class IV jobs shall be conducted using wet methods, HEPA vacuums, and prompt clean up of debris containing ACM. Employees cleaning up debris and waste in a regulated area where respirators are required shall wear the selected respirator.

6. Cleaning After Asbestos Removal

After completion of all asbestos removal Work, surfaces from which ACM has been removed shall be wet wiped, sponged clean, or cleaned by some equivalent method to remove all visible residue material. Run-off water shall be collected and filtered through a dual filtration system. A first filter shall be provided to remove fibers 20 micrometers and larger, and a final filter provided that removes fibers 5 micrometers and larger. After the gross amounts of asbestos have been removed from every surface, remaining visible accumulations of asbestos on floors shall be collected using plastic shovels, rubber squeegees, rubber dustpans, and HEPA vacuum cleaners as appropriate to maintain the integrity of the regulated area. When TSI and surfacing material has been removed, workmen shall use HEPA vacuum cleaners to vacuum every surface. Surfaces or locations that could harbor accumulations or residual asbestos dust shall be checked after vacuuming to verify that no asbestos-containing material remains; and shall be re-vacuumed as necessary to remove the ACM.

3.10 FINAL CLEANING AND VISUAL INSPECTION

HMC shall make all work areas available to inspection at all times. Governments IH may inspect all materials from the work area that are being disposed of as non-asbestos containing materials. Upon completion of abatement, the regulated area shall be cleaned by collecting, packing, and storing all gross contamination. A final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. No power washing or spraying water on ceiling deck to remove ACM fire proofing will be allowed. Upon completion of the cleaning, the HMC shall conduct a visual pre-inspection of the cleaned area in preparation for a

final inspection before final air clearance monitoring and re-cleaning, as necessary. Upon completion of the final cleaning, the HMC and the Government IH shall conduct a final visual inspection of the cleaned regulated area in accordance with ASTM E 1368. Results of the visual inspection shall be documented on the Final Cleaning and Visual Inspection form. If the Government IH rejects the clean regulated area as not meeting final cleaning requirements, the HMC shall re-clean as necessary and have a follow-on inspection conducted with the Government IH. Re-cleaning and follow-up re-inspection shall be at the HMC's expense.

3.11 LOCKDOWN

Prior to removal of plastic barriers, after clean up of gross contamination and final visual inspection, a tinted post removal (lockdown) encapsulant shall be spray applied to ceiling, walls, floors, and other surfaces in the regulated area.

3.12 HAZARDOUS MATERIALS CONTRACTOR'S EXPOSURE ASSESSMENT AND AIR MONITORING

A. General Requirements for Exposure

The HMC is responsible for performing OSHA exposure assessment and personal air monitoring. Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101, the HMC's air monitoring plan, and as specified. Personal exposure air monitoring (collected at the breathing zone) that is representative of the exposure of each employee who is assigned to Work within a regulated area shall be performed by the HMC's Designated Project Manager/Supervisor or Industrial Hygienist. The personal exposure assessment samples shall be collected on a daily basis. Breathing zone samples shall be taken for at least 25 percent of the workers in each shift or a minimum of 2 whichever is greater.

B. Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours (breathing zone samples) after completion of a sampling period. The Government's IH shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst.

The Government's IH will perform pre-abatement and abatement environmental air monitoring. The Government's IH will also perform final clearance environmental air monitoring. Environmental air monitoring shall be performed using NIOSH Pub No. 84-100 Method 7400 (PCM). Air clearance sampling shall be performed using NIOSH Pub No. 84-100 Method 7402 (TEM).

The Government's IH may duplicate monitoring at the discretion of the Government. Results of breathing zone samples shall be posted at the job site and made available to the Government's IH The HMC shall maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the asbestos abatement activities. If the fiber concentration rises above 0.1 f/cc in the Work area, the HMC shall investigate the Work procedures with the Government's IH to determine the cause of the rise. At the discretion of the Government's IH, fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. The HMC's workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a sampling period of 30 minutes. Should either an

environmental concentration of 1.0 f/cc expressed as an 8-hour TWA or a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside a regulated Work area, the HMC shall stop Work immediately. HMC shall notify the Government's IH, and implement additional engineering controls and Work practice controls to reduce airborne fiber levels below prescribed limits in the Work area. Work shall not restart until authorized by the Government's IH.

C. Initial Exposure Assessment

The HMC's Designated Project Manager/Supervisor or Industrial Hygienist shall conduct an exposure assessment immediately before or at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to comply with the requirements, which are triggered by exposure data or the lack of a negative exposure assessment, and to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into consideration the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the HMC which indicate the levels of airborne asbestos likely to be encountered on the job.

For Class I asbestos Work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of PELs, or otherwise makes a negative exposure assessment, the HMC shall presume that employees are exposed in excess of the PEL-TWA and PEL-Excursion Limit.

D. Negative Exposure Assessment

The HMC shall provide a negative exposure assessment for the specific asbestos job, which will be performed. The negative exposure assessment shall be provided within 10 days of the initiation of the project and conform to the following criteria:

1. Objective Data: Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the PEL-TWA and PEL-Excursion Limit under those Work conditions having the greatest potential for releasing asbestos.

2. Prior Asbestos Jobs: Where the HMC has monitored prior asbestos jobs for the PEL and the PEL-Excursion Limit within 12 months of the current job, the monitoring and analysis were performed in compliance with asbestos standard in effect; the data were obtained during Work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, Work practices, and environmental conditions used and prevailing in the HMC's current operations; the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job; and these data show that under the conditions prevailing and which will prevail in the current workplace, there is a high degree of certainty that the monitoring covered exposure from employee exposures will not exceed the PEL-TWA and PEL-Excursion Limit.

3. Initial Exposure Monitoring: The results of initial exposure monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations, which are most likely during the

performance of the entire asbestos job to result in exposures over the PELs.

3.13 INDEPENDENT ENVIRONMENTAL MONITORING

The Government has retained an independent air-monitoring firm to perform pre-abatement, during abatement and final clearance air monitoring. The Government's IH has been provided a copy of the specifications that includes this abatement Work. The HMC will provide the Government's IH with an up-to-date copy of the accepted Asbestos Hazard Abatement Plan, Accident Prevention Plan and pertinent detailed drawings. The Government's IH is required to comply with the HMC's safety and health requirements. The HMC will coordinate all onsite activities with the Government's IH. The HMC will provide the Government's IH with an up-to-date schedule of HMC Work activities. The Government's IH will coordinate with the HMC during the performance Government required air monitoring. The HMC is responsible for performing exposure assessment and personal air monitoring of HMC's workers.

A. Responsibility for Air Monitoring

Responsibility for all air sampling, other than HMC's employee personal sampling shall fall on the Government's IH.

B. Preabatement Environmental Air Monitoring

Preabatement environmental air monitoring shall be established prior to the masking and sealing operations for each regulated area to determine background concentrations before abatement Work begins. As a minimum, non-aggressive pre-abatement air samples shall be collected using NIOSH Pub No. 84-100 Method 7400, PCM at these locations: inside the building, but outside the regulated area perimeter inside each regulated Work area and other areas demeaned necessary by the Government. One sample shall be collected for every 5000 square feet of floor space. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH Pub No. 84-100 Method 7402 (TEM).

C. Environmental Air Monitoring during Abatement

Until an exposure assessment is provided to the Government's IH, environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The assessment shall demonstrate that the product or material containing asbestos minerals cannot release airborne asbestos fibers in concentrations exceeding 0.01 f/cc as a TWA under those Work conditions having the greatest potential for releasing asbestos. The monitoring shall be at least once per shift.

Air monitoring shall be at the following locations: at outside entrances to a regulated area; close to glovebag operations not under gross removal conditions, representative locations outside of the perimeter of a regulated area including stairwells, occupied floors by elevators, inside clean room; by load out area, and at the exhaust discharge point of local exhaust system ducked to the outside of a containment (if possible). If the sampling outside the regulated area shows airborne fiber levels has exceeded the background or 0.01 f/cc, whichever is greater, Work shall be stopped immediately. The condition causing the increase shall be corrected. Work shall not restart until authorized by the Government.

D. Final Clearance Air Monitoring

Prior to conducting final clearance air monitoring, the HMC and the Governments IH shall conduct a final visual inspection of the regulated area where asbestos abatement has been completed. Final clearance air monitoring shall not begin until acceptance of the HMC's final cleaning by the Governments IH and encapsulation has dried. Critical barriers and enclosures shall remain intact until after final air clearance has been achieved. The Government's IH will conduct final clearance air monitoring using aggressive air sampling techniques as defined in EPA 560/5-85-024 or as otherwise required by federal or state requirements. The sampling and analytical method used will be EPA TEM Method specified at 40 CFR 763.

5. Final Clearance Requirements, EPA TEM Method

For EPA TEM sampling and analysis, using the EPA Method specified in 40 CFR 763, abatement inside the regulated area is considered complete when the arithmetic mean asbestos concentration of the 5 inside samples is less than or equal to 70 structures per square millimeter (70 S/mm). When the arithmetic mean is greater than 70 S/mm, the 3 blank samples shall be analyzed. If the 3 blank samples are greater than 70 S/mm, re-sampling shall be done. If less than 70 S/mm, the 5 outside samples shall be analyzed and a Z-test analysis performed. When the Z-test results are less than 1.65, the decontamination shall be considered complete. If the Z-test results are more than 1.65, the abatement is incomplete and cleaning shall be repeated. Upon completion of any required re-cleaning, re-sampling with results to meet the above clearance criteria shall be done. The HMC shall plan and allow for adequate time for final TEM air clearances. HMC shall allow a minimum of three (3) days to conduct the sampling activities, to send TEM samples by over night delivery service and receive results from laboratory.

6. Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, the HMC shall pay all costs associated with the required re-cleaning, re-sampling, and analysis, until final clearance requirements are met.

7. Quality Assurance Blank Samples

Each group of air samples collected daily or on each shift shall contain samples at the rate of two or ten percent, which ever greater. At least one blank shall be unopened from the manufacturer(sealed) and one shall be opened briefly in the cleanest area nearest the work site (field

3.14 CLEARANCE CERTIFICATION

When asbestos abatement is complete, ACM waste is removed from the regulated areas, and final clean up is completed, the Government's IH will certify the areas as safe before allowing the warning signs and boundary warning tape to be removed. HVAC, mechanical, and electrical systems shall be re-established in proper working order. The HMC and the Governments IH shall visually inspect all surfaces within the containment for residual material or accumulated debris. The HMC shall re-clean all areas showing dust or residual materials.

3.15 CLEANUP

A. Collection and Disposal of Asbestos

All ACM waste shall be collected and including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in leak-tight containers such as double 6 mil plastic bags; sealed and double wrapped in two (2) separate sheets of 6 mil polyethylene or other approved waste containers. Waste within the containers shall be wetted in case the container is breeched.

3.16 DISPOSAL OF ASBESTOS

A. Packaging

HMC shall enclose all asbestos waste doubled bagged in a minimum of two (2) layers of 6 mil plastic labeled with EPA approved warnings, DOT designation, the generator name and project location. HMC shall ensure that EPA-approved Waste Shipment Records (WSR) are completed for all asbestos waste disposed and that a copy of each WSR is forwarded to the Government no later than 30 days from the date of the waste was accepted by the initial transported. All asbestos waste shall be transported to the landfill in a plastic lined, enclosed containers or vehicle.

B. Asbestos-Containing Waste

Asbestos-containing waste shall be disposed of at a state approved asbestos landfill. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/ transportation conveyance (i.e., Dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the Government. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, and state, regional, and local standards.

3.17 ASBESTOS CLOSEOUT DOCUMENTS

The HMC shall provide the government with the following closeout documents at the conclusion of the project.

A. Asbestos Waste Shipment Records
B. Waste manifest for disposal of ballast
C. Waste manifest for fluorescent bulbs
D. HMC's Daily Logs
E. OSHA Compliance Monitoring
F. Accident Reports
G. Pre and Post Notifications with Amendments Attached

APPENDIX "A"

REFERENCES

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REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Comply with the publication in effect as of date of the Contract Documents.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2 (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems

ANSI A10 Series Safety Requirements for Construction and Demolition

ANSI Z87.1 (1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection

ANSI Z88.2 (1992) Respiratory Protection

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 732 (1995) Aging Effects of Artificial Weathering on Latex Sealant

ASTM D 522 (1993a) Mandrel Bend Test of Attached Organic Coatings

ASTM D 1331 (1989; R 1995) Surface and Interfacial Tension of Solutions of Surface-Active Agents

ASTM D 2794 (1993) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

ASTM D 4397 (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

ASTM E 84 (1998e1) Surface Burning Characteristics of Building Materials

ASTM E 96 (1995) Water Vapor Transmission of Materials

ASTM E 119 (1998) Fire Tests of Building Construction and Materials

ASTM E 736 (1992) Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

ASTM E 1368 (1997) Visual Inspection of Asbestos Abatement Projects

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1926 Safety and Health Regulations for Construction

40 CFR 61 National Emissions Standards for Hazardous Air Pollutants

40 CFR 763 Asbestos

42 CFR 84 Approval of Respiratory Protective Devices

49 CFR 107 Hazardous Materials Program Procedures

49 CFR 171 General Information, Regulations and Definitions

49 CFR 172 Hazardous Materials Table Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

49 CFR 173 Shippers - General Requirements for Shipments and Packaging

COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7 (1990) Compressed Air for Human Respiration

CGA G-7.1 (1997) Commodity Specification for Air

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90-018 (1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance

EPA 340/1-90-019 (1990) Asbestos/NESHAP Adequately Wet Guidance

EPA 560/5-85-024 (1985) Guidance for Controlling Asbestos-Containing Materials in Buildings

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

NECA Design Library Temporary Electrical Facilities

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 National Electrical Code

NFPA 241 Standard for Safeguarding Construction, Alterations, and Demolition Operations

NFPA 701 (1996; TIA 96-1, 96-2) Methods of Fire Tests for Flame-Resistant Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 94-100 (1994; 4th Ed.) NIOSH Manual of Analytical Methods

UNDERWRITERS LABORATORIES (UL)

UL 586 (1996; Rev thru Apr 2000) High-Efficiency, Particulate, Air Filter Units

CITY OF KANSAS CITY, MISSOURI

Chapter 8 Air Quality Section 8-9, Restriction of Emissions of Hazardous Air Pollutants

MISSOURI DEPARTMENT OF NATURAL RESOURCES

10 CSR 10-6.240 to 250 Asbestos Abatement Projects – Certification, Accreditation and Business Exemption Requirements

10 CSR 25-16.273 – Missouri Hazardous Waste Management Law and Regulations

APPENDIX "B"

DEFINITIONS

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DEFINITIONS

Adequately Wet: A term defined in 40 CFR 61, Subpart M, and EPA 340/1-90-019 meaning to sufficiently mix or penetrate with liquid to prevent the release of particulate. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

After Normal Work Hours: is defined as weekends or holidays and any time after the hours of 6:00 p.m. and 6:00 am, weekdays.

Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact asbestos-containing material (ACM).

Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.

Asbestos: Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

Asbestos-Containing Material (ACM): Any materials containing more than one- percent asbestos.

Asbestos Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1.

Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.

Building Inspector: Individual who inspects buildings for asbestos and has EPA Model Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

Certified Industrial Hygienist (CIH): An Industrial Hygienist certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM.

Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM, which is not thermal system insulation, or surfacing material. This includes, but is not limited to, the removal of asbestos - containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain "incidental" roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II asbestos work. Removal of small amounts of these materials, which would fit into a glovebag, may be classified as a Class III job.

Class III Asbestos Work: Activities defined by OSHA that involves repair and maintenance operations, where ACM, including TSI and surfacing ACM, is likely to be disturbed. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics and spaces above the ceiling, where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.

Class IV Asbestos Work: Maintenance and custodial construction activities during which employees contact but do not disturb ACM and activities to clean-up dust, waste and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust exists and cleaning up loose ACM debris from TSI or surfacing ACM following construction.

Clean room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

Competent Person: In addition to the definition in 29 CFR 1926, Section 32(f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926, Section 1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

Confined Space: A space that (1) is large enough and so configured that a person can bodily enter and perform assigned work; and (2) has limited or restricted means for entry or exit such that the entrant's ability to escape in an emergency would be hindered (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry; and (3) is not designed for continuous worker occupancy.

Confinement Curtain: means a curtain that restricts the movement of air into and from an unventilated and contaminated area. This curtain consists of three (3) constructed baffles that covers the entire area of the entryway framework and along alternate sides of locations in a manner that will allow two (2) of the curtains to fully cover the entryway opening while a person passes through the third curtain. An airlock arrangement consisting of two (2) confinement curtain entryways that are located at least three (3) feet apart may be substituted for the triple baffle arrangement.

Contractor/Supervisor: An individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E and Appendix C.

Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a regulated area from migrating to an adjacent area.

Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Disposal Bag: A clear 0.15 mm 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926, Section10 1101, used for transporting asbestos waste from containment to disposal site.

Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 1.5 m 60 inches in length and width in order to access a building component.

Equipment Room or Area: An area adjacent to the regulated area used for the decontamination of employees and their equipment.

Employee Exposure: That exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Fiber: A fibrous particulate, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.

Friable ACM: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Glovebag: A leak proof 6 mil transparent polyethylene or polyvinylchoride bag. Not more than a 1.5 by 1.5 m 60 by 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

Government=s Independent Consultant: Shall refer to the third party consultant, independent of the HMC, and is responsible for project surveillance and typically under separate contract to the government.

High-Efficiency Particulate Air (HEPA) Filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.

Industrial Hygienist: A professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.

Intact: ACM, which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.

Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763, Subpart E, Appendix C.

Modification: A changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system.

Negative Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).

NESHAP: National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61, Subpart M.

Nonfriable ACM: A NESHAP term defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 meaning any material containing more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90-018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy.

Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90-018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using the methods specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Permissible Exposure Limits (PELs): (1) PEL-Time weighted average (TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8 hour time weighted average (TWA), as determined by the method prescribed in 29 CFR 1926, Section 1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400. (2) PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes as determined by the method prescribed in 29 CFR 1926, Section 1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400.

Polyethylene Plastic: All references to polyethylene plastic refers to 6 mil plastic sheeting or polyethylene bags or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Regulated Area: An OSHA term defined in 29 CFR 1926, Section 1101 meaning an area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted; also any adjoining area where debris and waste from such asbestos work accumulate; and an area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

Removal: All operations where ACM is taken out or stripped from structures or substrates, and include demolition operations.

Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates. If the amount of asbestos disturbed cannot be contained in 1 standard glovebag or waste bag, Class I precautions are required.

Spills/Emergency Cleanups: Cleanup of sizable amounts of asbestos waste and debris which has occurred, for example, when water damage occurs in a building, and sizable amounts of ACM are dislodged. A Competent Person evaluates the site and ACM to be handled, and based on the type, condition and extent of the dislodged material, classifies the cleanup as Class I, II, or III. Only if the material was intact and the cleanup involves mere contact of ACM, rather than disturbance, there could be a Class IV classification.

Splash Guards: Six (6) mil poly that is placed or attached to vertical surfaces to protect wall and other non-moveable surfaces from floor tile mastic remover splatters.

Surfacing ACM: Asbestos-containing material which contains more that 1% asbestos and is sprayed-on troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal system insulation (TSI) ACM: ACM which contains more than 1% asbestos and is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation.

Transite: A generic name for asbestos cement wallboard and pipe.

Triple Flap Curtain: A curtain constructed of 6 mil poly with three separate off setting layers poly. The first layer is fastened along the right side of the entry and across the top leaving the left side unattached, next layer attach the left side and top and on the third layer fasten the right side and top leaving the left side open.

Ventilation Curtain: A ventilation curtain is intended to allow unrestricted airflow into a contaminated area when it is being ventilated with an exhaust fan. This curtain shall consist of a single flap that opens into the contaminated area. The curtain shall be securely fastened across the top of the entryway frame work in a manner that will allow it to overlap both sides of the entryway by a distance of no fewer that 12 inches and the base of the entryway by a distance of no fewer than three inches.

Visible Emissions: means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing materials.

Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926, Section 1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation required by 40 CFR 763, Subpart E, Appendix C, if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

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APPENDIX "C"

BULK SAMPLE RESULTS

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APPENDIX "D"

CERTIFICATE OF WORKERS ACKNOWLEDGEMENT

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CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: FRANK BOLLING FEDERAL BUILDING – Phase IV

PROJECT ADDRESS: 601 East 12th Street, Kansas City, Missouri

HAZARDOUS MATERIAL CONTRACTOR:_____

WORKING WITH ASBESTOS CAN BE HAZARDOUS TO YOUR HEALTH. INHALING ASBESTOS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS YOUR CHANCES OF DEVELOPING LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the owner for the above referenced project requires that: You must be supplied with the proper personal protective equipment including an adequate respirator and be trained in its use. You must be trained in safe and healthy work practices and in the use of equipment found at an asbestos abatement project. You must receive/have a current medical examination for working with asbestos. These things shall be provided to at no cost to you. By signing this certificate you are indicating to the Government that your employer has met these obligations to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators and have been informed of the type of respirator to be used on the above indicated project. I have a copy of, or access to, the respiratory protection manual issued by my employer. I have been provided for my exclusive use, at no cost, with a respirator to be used on the above indicated project

MEDICAL EXAMINATION: I have had a medical examination and a blood lead level test within the last 12 months which was paid for by my employer. This examination included: Health History, occupational history, pulmonary function test, and may have included a chest x-ray evaluation. I was personally informed of the results of that examination and any medical conditions resulting from asbestos/lead exposure. My employers Component Person and/or Industrial hygienist evaluated the medical certification provided by the physician. The physical examination determination that there (were / were no) limitations to performing the required work.

TRAINING COURSE: I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

Physical characteristics of asbestos	Respiratory protection
Health Hazards associated with asbestos	Use of protective equipment
Negative air/pressure differential systems	Work practices including hands on or on-job training
Personal decontamination procedures	Air monitoring, personal and area

_____ _____
Print Name Worker's Signature

_____
Date

Attach Current refresher certificate, current fit test, and medical to this form.

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APPENDIX "E"

CERTIFICATE OF VISUAL INSPECTION PRE & POST ABATEMENT

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Kingston Environmental Services, Inc.
15450 Hangar Road
Kansas City, Missouri 64147

Certificate of Visual Inspection

Pre-Abatement

Location: _____KES Project Number: _____

Date: _____

Certified by: _____

Removal Activities to be Performed: _____

_____

_____

Pre-cleaning Activity:	Yes	No	Not Applicable	Comments
Move furniture, boxes, etc.	___	___	_____	_____
Sweep Floors, Sills, etc.	___	___	_____	_____
HEPA-Vac Debris	___	___	_____	_____
Lock-out / Tag-out	___	___	_____	_____

The contractor, _____, hereby certifies that he / she has prior to abatement visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has cleaned all apparent dust, debris or residue.

By: _____ Date: _____
(SIGNATURE)

_____
(PRINT NAME)

_____
(PRINT TITLE)

PROJECT ADMINISTRATOR CERTIFICATION

The Project Administrator hereby certifies that he has accompanied the Contractor on his pre-abatement visual inspection and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

By: _____ Date: _____
(SIGNATURE)

_____
(PRINT NAME)

_____
(PRINT TITLE)

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Kingston Environmental Services, Inc.
15450 Hangar Road
Kansas City, Missouri 64147

Certificate of Visual Inspection

Post-Abatement

Location: _____ KES Project Number: _____

Date: _____

Certified by: _____

Containment Description: _____

_____

_____

Items in Place:	Yes	No	Not Applicable	Comments
Negative Pressure	___	___	_____	_____.
Criticals	___	___	_____	_____.
Drop Cloth	___	___	_____	_____.
GFCI	___	___	_____	_____.

The contractor, _____, hereby certifies that he / she has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

By: _____ Date: _____
(SIGNATURE)

_____
(PRINT NAME)

_____
(PRINT TITLE)

PROJECT ADMINISTRATOR CERTIFICATION

The Project Administrator hereby certifies that he has accompanied the Contractor on his visual inspection and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

By: _____ Date: _____
(SIGNATURE)

_____
(PRINT NAME)

_____
(PRINT TITLE)

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APPENDIX "F"

SCOPE OF WORK

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SCOPE OF WORK

1. General Notes:

The HMC for this project will be under contract to the General Contractor. HMC shall review Volume IV - Reference drawings to familiarize himself with all existing conditions. HMC shall also refer to the Hazardous Material drawings. All demolition work shall be coordinated with Architectural demolition drawings and work of other trades. HMC should refer to Section 01310 – Schedules And Reports for scheduling and phasing of work. All abatement and demolition work shall be conducted in accordance with all federal, state and local regulation, rules and ordinances.

All abatement work will be conducted during non-business hours. HMC shall coordinate his disposal dumpster requirements with the general contractor. The south 8,000-lb elevator will be dedicated to the HMC and other trades. Between 4 PM and 10 PM the building custodial contractors require the use of the north 6,000-lb elevator. After 10 PM the HMC may have access to the 6,000-pound elevator until 6 AM. Use of the 6,000-lb elevator is subject to minimal usage for other building requirements. HMC will not be allowed to have a job trailer on site, coordinate office space requirements with general contractor. One elevator will be available for passenger use only. No onsite parking for the HMC or HMC employees will be available.

All floor to ceiling partitions, furniture, fixtures, and equipment, carpeting and carpet squares, demountable partitions, toilet partitions, toilet and plumbing fixtures and all accessory items that do not penetrate the ceiling shall be removed by the general contractor prior to abatement of asbestos-containing materials (ACM). All floor plates (wood or metal) attached to the floor shall be removed by the HMC. In all cases the HMC shall be responsible for constructing all containment barriers, and maintaining negative pressure and all separations as required by Federal, State and Local regulations. HMC shall notify regulatory agencies of any “dry” abatement requirement and secures permit as required by NESHAP.

HMC shall coordinate all electrical requirements including lockout and tag out activities with the Owner, general contractor and the general contractor’s electrical contractor. Related cost shall be the responsibility of the HMC. Electrical closets are located on all floors. These electrical closets shall be abated at a time when they can be de-energized. The Electrical closets will remain active during other abatement activities.

There is a considerable amount of contaminated material demolition to be completed by the HMC. HMC should reference all discipline drawings and the Reference Drawings - Volume IV. The demolition includes but is not limited to walls, columns, duct work, ceramic wall tile, concrete and masonry block items, fire sprinkler lines, sprinkler heads, hangers, supports, fire hose cabinets, ceiling grid systems and electrical devices.

HMC shall allow sufficient time in his/her abatement schedule for visual inspections, clearance sampling and recleaning as needed. All clearance samples will be aggressive TEM samples.

2. HMC shall provide respiratory training for other sub-contractors to enter containment space.

The HMC shall provide respirator training and fit testing to the general contractor and other subcontractor employees. The general and subcontractors’ employees will be required to get physicals to determine if they can wear a respirator. The general and all other sub-contractor are to follow the HMC respiratory protection program. This is being done so the various MEP contractor’s can enter the containment to mark items that are required to remain in place or will be required to be removed by the HMC. HMC respiratory protection requirements can be found in Section 1.10 of the specification.

3. Thermal System Insulation

Project requirements are for the HMC to remove all thermal system insulation found or discovered within the boundaries of the project. Removal may require demolition of plaster metal lathe walls and ceilings, gypsum board walls and ceilings and columns, ceiling tile and grid system, concrete block walls, and pipe chases. The HMC shall remove all mud joint fittings and asbestos-containing pipe insulation from piping located in vertical chases, pipe chases, above ceilings, in ventilation shafts, above ceilings and all thermal system insulation found on, around and in mechanical equipment/areas. The mud joint fittings, asbestos-containing pipe insulation and asbestos contaminated fiberglass insulation shall be removed from the subbasement to a point below floor level on the 4th floor, and including the 17th floor. HMC shall seal the end of any remaining pipe insulation left in wall cavities with red caulking. HMC shall show on the s all areas where asbestos has been encapsulated and left in place. The HMC shall demolish concrete block walls and ceiling materials as needed to access TSI around water fountains and pipe chases. All fiberglass-insulated lines are to be considered contaminated and shall be removed as contaminated waste.

4. Surfacing Material (Fire Proofing)

HMC shall place criticals over doors, windows, vents, ducts and other openings as needed. Project requirements are for the HMC to remove all fireproofing and fire proofing overspray found or discovered within the project boundaries. Fire proofing is found on corrugated metal decking; flat concrete deck, support columns, structural steel beams and over spray will be found everywhere. In areas where cement block walls have been constructed, and are to remain, to meet the ceiling deck the HMC shall remove fire proofing in the corrugation cavities areas on top of the wall. The corrugation cavities shall be sealed with a red sealant if any fire proofing material is left in place. The fireproofing contains Chrysotile asbestos. No power washing will be allowed on this project. The work will be conducted above occupied floors. HMC shall conduct visual inspections of areas below the removal area for water leaks. If leaks are found, the HMC shall stop his work immediately and find the source of the leak and clean up the areas affected by the leak. HMC shall seal the leak in the containment before continuing the abatement work. All leaks must be found and stopped, related cleanup activities must be completed before 4:00 A.M. to allow the Government's IH to run air samples to determine if the areas is clean and safe for tenants to occupy.

A corrugated ceiling deck exists in all areas except those areas where terrazzo flooring is located in elevator lobbies. The ceiling deck located in the elevator lobby area is a flat concrete ceiling. The flat concrete deck is generally located in the elevator lobby area and short corridors leading from lobby area.

5. Ceiling Tile

All ceiling tile contain asbestos. Ceiling tiles are also considered contaminated with asbestos fire proofing. Ceiling tile grid suspension systems, metal grid and hanger support wires are to be removed. Dispose of all materials as contaminated waste. HMC shall cut ceiling tile support system (wire) as close to metal deck pan as possible. The tested ceiling tiles have a mixture of Amosite and Chrysotile asbestos. HMC shall be aware of loose chucks of delaminated fire proofing; pieces of ceiling tile and concrete coring may be on top of the existing ceiling tile.

6. Floor Tile and Floor Tile Mastic

HMC shall abate all floor tile and/or floor tile mastic found within the project boundaries. Floor tile and floor tile mastic shall be left in place until all other ACM has been removed. HMC shall seal all voids, holes and cracks in concrete floor. In areas where cracks, holes, and voids are found the HMC shall use extra care, caution and protection to keep mastic remover from migrating into occupied areas below. The Government does not want leaks to occur. When working above occupied floors, HMC shall visually check those areas, which may let floor tile wetting agents or mastic remover to migrate through cracks,

holes or other voids in the concrete floor on a routine basis. When a leak has been discovered the HMC

shall immediately clean excess floor tile mastic remover from the leaking areas and proceed immediately to cleanup the area where the leak has occurred. Only floor tile mastic remover classified as no odor shall be used. Adequate negative air machines shall be used to remove any residual mastic remover odor to the exterior of the building. Use mastic remover sparingly. Excessive amounts of mastic remover may create unwanted odors. All floor tiles must be double bagged for disposal.

7. HVAC Duct Work

The HMC shall coordinate with mechanical contractor as to removal and disposal of contaminated duct work, supports, and accessories. HMC maybe required to lower,clean interior and exterior areas of the duct and protect the duct work for reinstallation by others at a later date. Where supply and return ducts are to be cut, seal off with metal cap made to fit over outside deminsion of duct. Secure metal pan to duct with self tapping metal screws. After capping the ducts cover with plastic wrap. See drawings for details. Duct work removed and scheduled for disposal by the HMC shall be wrapped in two (2) separate pieces of polly with off sitting seams.

HMC shall clean and protect all metal ducts and equipment in all shafts where work is conducted within the project boundries. HMC shall cut openings as required into CMU shaft walls containing vertical air and duct chases as needed. See drawings for opening sizes. Remove and dispose of all asbestos-containing debris, TSI, fire proofing on structural steel, fire proofing overspray on walls, floors, and ducts. See drawings for additional information. See Reference Drawings – Volume IV. Coordinate these activities with the General Contractor and the MEP subcontractors.

Duct Work Above Ceiling Tile:

All ductwork (as indicated on drawings) and fasteners shall be removed and disposed of as contaminated waste. Ductwork hanger supports shall be removed as close to metal deck as possible. Coordinate with the General and HVAC Contractor. See Reference Drawings – Volume IV.

Following abatement of ceiling tile, ceiling deck fire proofing, structural steel and decking, remove poly from floor, open in-slab wire channels and remove all wiring and dispose of, vacuum and clean wiring channels, replace the plug if available. If plug is not available seal wiring channels with duct tape. Following removal and cleaning of wire channels, remove floor tile and floor tile mastic. See Reference Drawings – Volume IV. Refer to General Contractor for sealing requirements.

8. Toilet Room Work

HMC shall enclose and seal off only one toilet room (men & women) at a time for abatement work. To accommodate plumbing renovations of toilet rooms, HMC shall remove ceramic tile from walls down to top of terrazzo base on exterior walls and on walls to be demolished. Remove terrazzo base on exterior walls. Remove terrazzo base to floor level on interior walls. HMC shall remove existing wall mounted light fixtures. Work also involves removing contaminated materials, plaster ceilings, black iron, TSI, fire proofing and overspray from the deck above all toilet room plaster ceilings. All ACM debris shall be abated.

HMC shall remove ceramic tile from walls down to top of terrazzo base on exterior walls. Remove ceramic tile on demolition walls. Remove terrazzo base on exterior walls. Remove terrazzo base to floor level on interior walls. HMC shall remove existing wall mounted light fixtures. Work also involves removing plaster ceilings, black iron, abatement of thermal system insulation, fire proofing and ACM debris found above the plaster ceiling areas. Toilet rooms located on both ends of each floor also includes the mechanical chase located between both toilet rooms.

The core toilet room has a pipe chase located at Column B-15. This pipe chase must be abated from

inside the toilet room. This chase extend all the way to the sub-basement. Provide containment of shaft in the sub-basement. The chase outlet is located just west of the Building Control Room at column line B-13.

9. Public Elevators

On all floors, HMC shall construct a rigid barrier over all passenger elevator doors prior to starting abatement activities for that floor. This rigid barrier shall be made air tight to reduce the positive – negative pressure produced by the operation of the elevators. HMC shall check integerity of the seal a minimum of twice per work shift. Make repairs as necessary. General Contractor may want to leave the

barriers in place after abatement activities have ended as dust barriers for his work. HMC shall protect the interior wall of each elevator used from damage.

Freight Elevator Lobby:

Remove and dispose of steel doors, door frame, and glazed block wall material, plaster ceiling material, floor to underside of deck, full width of freight elevator lobby.

10. Pipe and Ventilation Chases:

B-9 Return Air Shaft

Remove CMU walls into vertical return duct shafts and duct spaces for access to remove branch ducts and for installation of access door openings and return air grilles. CMU walls to be removed floor to ceiling deck. See Architectural and Mechanical drawings for width of openings. Fully abate ACM from walls, ducts, pipes, fittings, and conduits. Starting at the 3rd floor, and working downward to the Basement floor, remove CMU shaft walls and branch ductwork on a floor by floor basis, as each floor is abated seal off and protect all other floors from abatement activities

C-11 Chase

At pipe chase C-11, HMC shall cut openings to access pipe chase at each floor (17th floor, 3rd floor through the Ground floor), and shall abate and dispose of all ACM pipe insulation and ACM pipe fittings. Fiberglass pipe insulation shall be removed as a contaminated material and disposed of. All ACM fire proofing, overspray and debris shall be abated and disposed of. At completion, install temporary plywood covers over all openings for access and work by others.

C-13 Chase

At pipe chase C-13, HMC shall cut openings to access pipe chase at each floor (17th floor, 3rd floor through the Groung floor) and shall abate and dispose of all ACM pipe insulation and ACM pipe fittings. Fiberglass pipe insulation shall be removed as a contaminated material and disposed of. All ACM fire proofing, overspray and debris shall be abated and disposed of. At completion, install temporary plywood covers over all openings for access and work by others. This pipe chase runs from the sub-basement to the 10th floor. Provide a containment in the sub-basement to catch any debris that may fall to the sub-basement.

C-14 Chase

Remove CMU walls into vertical duct chase for access to remove branch ducts and for installation of access door openings and return air grilles. CMU walls to be removed floor to ceiling deck. See Architectural and Mechanical drawings for width of openings.

B-15 Chase

Demolish toilet room side of chase for access to ACM in chase. Provide a containment in the sub-basement to catch any debris that may fall down the shaft and into the sub-basement.

11. Work on the Sub-basement Level

When found HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Partial asbestos abatement has occurred on this floor, see H 107 for location of full abatement and spot abatement areas. Abatement shall also include the removal of insulation on ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc. HMC shall review both Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes.

Abatement in the sub-basement includes removal of the black coated fiberglass insulation behind the cement asbestos ceiling panels. Full abatement shall include the removal and disposal of ACM and non-ACM pipe insulation and pipe joint fittings throughtout the locations shown, including tank insulation, piping and fittings inside ductwork, duct shafts, and return air shafts or return air spaces and all asbestos debris.

12. Work on the Basement Floor Level

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the Ground floor tenants. Partial asbestos abatement has occurred on this floor, see H 106 for location of full abatement and spot abatement areas. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical s. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc. HMC shall review both Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes.

All demolition work shall be coordinated with Architectural AD 106, Mechanical MD 120 through MD123, Plumbing PD 128 through PD 131 and Electrical ED 107. HMC shall be responsible for locating all mechanical piping and duct work for abatement. The abatement of the basement includes removal of miscellaneous, thermal system insulation,sprayed applied surfacing materials, asbestos debris and contaminated materials found within project boundries. See H 108 for location of full abatement and spot abatement areas.

Full abatement shall include the removal and disposal of ACM and non-ACM pipe insulation and pipe joint fittings throughtout the locations shown, including piping and fittings inside ductwork, duct shafts, and return air shafts or return air spaces.

13.0 Exterior Walls:

HMC shall demolish the interior perimeter of plaster exterior walls and fully abate plaster at inside of exterior wall and fully abate the asbestos materials. HMC shall remove and dispose of all plaster, metal lathe, black iron (channels and anchors), and all atachments. HMC shall remove and dispose of all fiberglass insulation materials, asbestos-containing tape, and mastic, and all asbestos-containing fibrous insulation. Scape and remove all plaster and ACM overspray from all surgaces, steel wall panels, support members, window framing members, window fasteners (clips and bolts, Aluminum window jambs, heads and clips, channels, and all accessories. All areas and members shall be free and clear of ACM overspray materials and debris. Plaster wall material shall be considered contaminated and disposed of as a contaminated material. HMC shall be aware of the void between the floor and the exterior wall

treatment. Window vents shall be sealed while wall material is being abated. Cut metal duct work feeding the floor above at the bottom of the steel beam located in the exterior wall. Seal off duct with a metal cap, metal screws and duct tape. Dispose of duct work as a contaminated material. When HMC moves to the next floor, HMC shall cut the remaining portion of duct off at the vent boot. See detail on H 109 Section C4.

HMC shall fire stop the void created at the exterior wall during abatement. HMC shall install the required fire stopping as specified in Specification Section 078413. Also see H 109 for additional details.

Electrical Closets:

There are electrical, telephone/data closets on each floor. In electrial and telephone/data closets scrape and clean asbestos overspray from walls, prep walls to protect from ceiling fire proofing removal activities. Remove asbestos spray from between top course of masonary and ceiling as far back as possible on all sides. Seal any remaining fire proofing with red colored sealant on all sides of the walls.

All electrical conduit and wiring shall be removed to the outside wall of the electrical wire closets or as directed by the Electrical Contractor on Floors 2, 3, and 17. The conduit and wiring shall be disposed of as contaminated waste.

14. Work on the Ground Floor

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the Ground floor tenants. Partial asbestos abatement has occurred on this floor, see H 105 for location of full abatement and spot abatement areas. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc.

15. Work on the First floor

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the First floor tenants. Partial asbestos abatement has occurred on this floor, see H 104 for location of full abatement and spot abatement areas. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior

steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc. HMC shall review both Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes.

16. Work on the Second Floor

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the Second floor tenants. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc.. HMC shall review both

Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes. Ductwork found in shafts F13 and J13 shall be abated, see Hazardous Material Drawing H 103 and Mechanical Drawings MD 112 and MD 113. HMC shall remove the existing mail chute on this floor and discard.

17. Work on the Third Floor

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the Third floor tenants. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc.. HMC shall review both Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes. Ductwork found in shafts F13 and J13 shall be abated, see Hazardous Material H 102 and Mechanical Drawings MD 108 and MD 109. HMC shall remove the existing mail chute on this floor and discard.

18. Work on the 17th Floor

HMC shall coordinate his activities with the general contractor, MEP contractors, property management, and the 17th floor tenants. Partial asbestos abatement has occurred on this floor, see H 101 for location of full abatement and spot abatement areas. HMC shall remove all thermal system insulation, floor tile, floor tile mastic, ceiling tile, ceiling tile grid system, fire proofing and ACM debris from areas not previously abated. All demolition work shall be coordinated with Architectural, Mechanical, Plumbing and Electrical drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. Abatement shall also include the removal of insulation from ductwork, both interior and exterior of ductwork, and the insulation from other equipment such as tanks, pumps, etc.. HMC shall review both Mechanical Demolition Drawings and Mechanical Shell Drawings in Volume I and Volume II for existing piping, fitting and ductwork locations and sizes.

HMC shall remove lay-in ceiling tile and perform ACM spot abatement from deck, (wall beams and / or supports) as required for floor penetrations to accommodate mechanical, plumbing and / or electrical installations, including support attachments for ducts, piping and conduits. See Architectural and MEP drawings. HMC shall demolish and remove all gypsum drywall and plaster furring from interior steel columns. HMC shall remove the existing mail chute on this floor and discard.

HMC shall demolish all ceilings, acoustic panels, including suspension systems, metal grid, and hanger support wires. Demolish drywall and plaster ceilings, including support channels, lath, wiring, hangers and accessories and dispose of as asbestos waste or as contaminated waste. As a part of the ceiling demolition, HMC shall remove all items attached the ceiling, including light fixtures, grills, panels, electrical devices and accessories. Check all drawings for complete scope of demolition and coordinate with the General and MEP contractor's.

HMC shall demolish all drywall partitions which are constructed from floor to bottom of metal deck. Walls that only extend to ceiling height will be removed by others. HMC shall remove all floor plates that are setting on floor tile. HMC shall remove CMU walls as required. Remove and dispose of all asbestos-containing mudded joint fittings, pipe insulation, fire proofing and ACM debris found in each chase.

Stairwells – Fire Hose Cabinets:

Remove fire hose cabinet associated with Stairwell # 2 on floors 4 through 10. Dispose of metal cabinet. Plumbing will be disconnect provided by others. Some of the fire hose cabinets are located in the

stairwell and some are located on the tennant side of the stairwell. HMC shall, after removing the fire hose cabinets, fill the wall cavities with fiberglass batt insulation. Wall cavity will be infilled later by others.

19. Other Environmental Concerns:

Light Fixtures and Bulbs:

All light fixtures shall be removed and cleaned for recycling or disposed of as contaminated waste.

Fluorescent bulbs shall be removed and cleaned for recycling or disposed of as a hazardous waste. HMC shall remove all PCB light fixture ballast. The ballast shall be disposed of as a hazardous waste or reclyed. HMC shall provide waste manifest and documentation for disposal of light fixtures, ballast and fluorescent bulbs.

20. As Built Drawings

Contractor shall mark on drawings all areas where asbestos remains. Those remaining locations shall be sealed with red caulking. Mark all red sealant locations on “As Built drawings”.

---- End of Section 132800 ----